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THE

MONTHLY CYCLOPÆDIA

and Medical Bulletin

OF

PRACTICAL MEDICINE.

EDITED BY

CHARLES E. DE M. SAJOUS, M.D.,

PHILADELPHIA.

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OF

PRACTICAL MEDICINE

(PUBLISHED THE LAST OF EACH MONTH)

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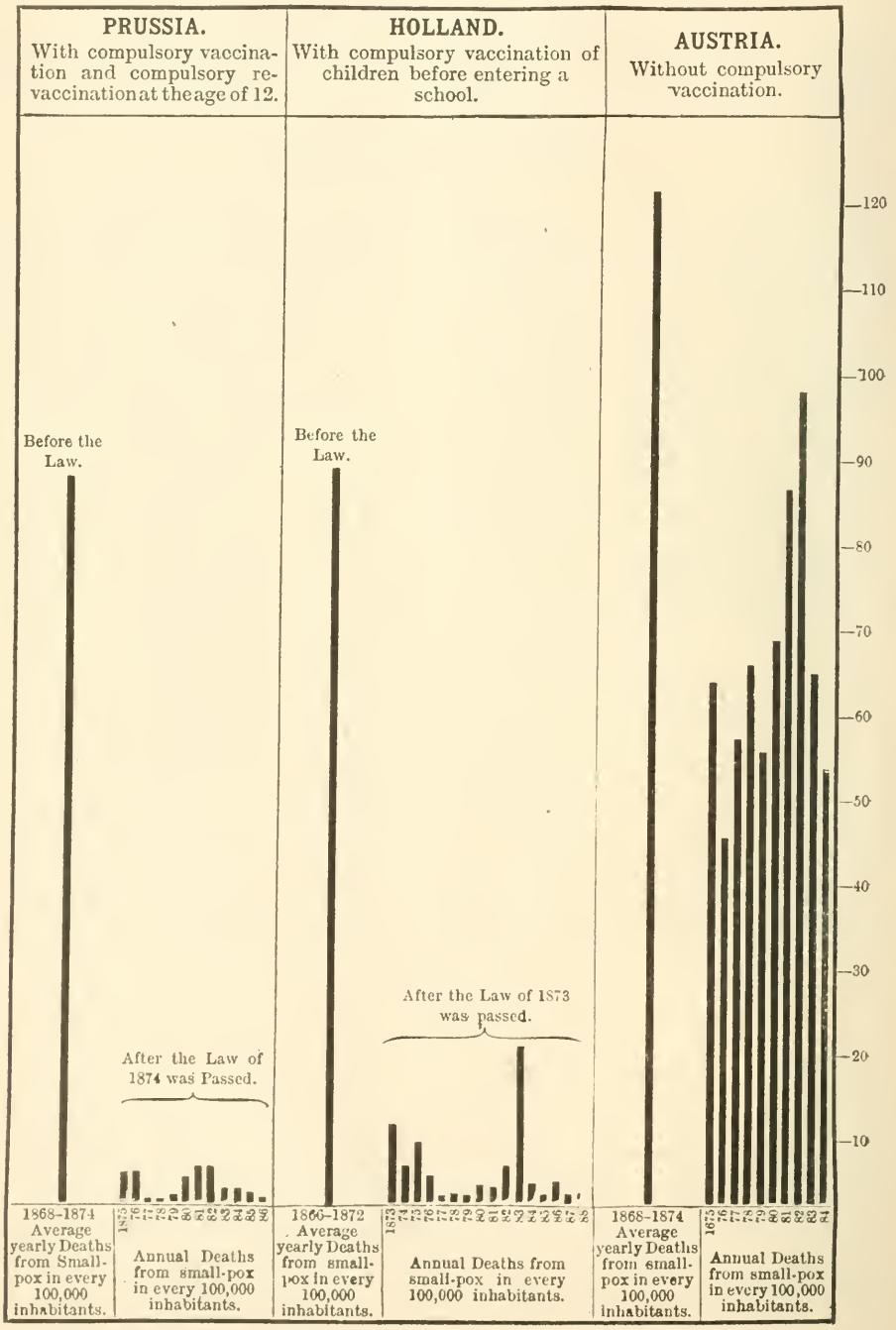
ASEPTIC VACCINATION.

In its last report, issued December 25, 1903, the Public Health and Marine-Hospital Service states that 13,739 cases of small-pox have been reported in the United States during the past six months, Pennsylvania alone being represented by 2887 cases, or over one-fifth of the whole. During the same period the number of cases in Germany, where vaccination is enforced, is given in the same report as 14. A stronger argument in favor of this protective measure could hardly be offered. When, also, it is considered that one of these cases occurred in Bremen, a port, and the balance in Kiel, another port, we might well say of Germany, with

an editorial writer[1]: "Indeed, but for the frequent introduction of infection from abroad, small-pox mortality would probably ere long be reduced to zero." More eloquent than words in this connection is the following chart published by the *Practitioner* for January, 1899:—


PRUSSIA.
With compulsory vaccination and compulsory re-vaccination at the age of 12.
HOLLAND.
With compulsory vaccination of children before entering a school.
AUSTRIA.
Without compulsory vaccination.
Before the Law.
Before the Law.
After the Law of 1874 was Passed.
After the Law of 1873 was passed.
120
110
100
90
80
70
60
50
40
30
20
10
1868-1874 Average yearly Deaths from Small-pox in every 100,000 inhabitants.
Annual Deaths from small-pox in every 100,000 inhabitants.
1866-1872 Average yearly Deaths from small-pox in every 100,000 inhabitants.
Annual Deaths from small-pox in every 100,000 inhabitants.
1868-1874 Average yearly Deaths from small-pox in every 100,000 inhabitants.
Annual Deaths from small-pox in every 100,000 inhabitants.

[1] British Medical Journal, March 9, 1898.

Bizzozero, of Rome,[2] commenting upon the results of compulsory vaccination in Germany, remarked at the time: "Germany stands alone in fulfilling in great measure the demands of hygiene, having, in consequence of the calamitous small-pox epidemic of 1870-71, enacted the law of 1874, which 'makes vaccination obligatory in the first year of life and revaccination also obligatory at the tenth year.' What was the result? With a population of 50,000,000, having in 1871 lost 143,000 lives by small-pox, she found by her law of 1874 the mortality diminished so rapidly that to-day the disease numbers only 116 victims a year." During the last six months the mortality was *1*. We have within our own territory testimony of the same kind—that recorded by Major Azel Ames[3]: In October, 1898, small-pox was endemic in Porto Rico; in December it was epidemic; in January, 1899, it had "honeycombed" the island, and the disease was spreading rapidly. In February systematic compulsory vaccination, carefully and scientifically conducted and recorded, was begun simultaneously and with about equal efficiency in all parts of the island. It was vigorously prosecuted *for four months only,* till July 1st, when 860,000 vaccinations had been made in a population of about 960,000. Of these 87 $^1/_2$ per cent. were successful. The work then ceased. In the two and a half years that have since passed, instead of the former annual death-rate of 621, the mortality from small-pox has been but *2* per annum in a population of nearly a million. "Can any honest, intelligent person," he asks, "doubt, in face of these indisputable and easily verified facts, *what* it was that in *four* short months drove small-pox from its wide and long-time reign in the island, and has since kept it out?"

Unfortunately, even such evidence will fail to overcome prejudice based on fear. Indeed, if all the reasons adduced by the militant opponents of vaccination are reduced to their simplest expression, they amount mainly to the *dread* of "inoculation by the vaccine virus," "matter," "poison from diseased tissues," etc. Such impressions statistics will not counteract. That the same thought underlies the objections to the procedure in the public mind—though in a less clearly defined way—is readily ascertained when objectors are asked to give their reasons. It seems evident, therefore, that rather than speak of the "ignorance" of these people, as some writers are wont to do, we should aim to subdue their apprehension by pointing to the marked progress made within the last ten years, precisely in the direction from which their fears emanate, and to *eliminate the causes of their apprehension.*

"All possible sources of contamination with pyogenic organisms are now obviated by the use of the glycerinated calf-lymph, which should come into general use," wrote Osler[4] four years ago. Experiments had shown that the addition to calf-lymph of a 50-per-cent. solution of pure glycerin in sterile water, followed by the storage of the lymph-material in tubes, under appropriate precautions for a sufficient time, sufficed to rid the lymph of pathogenic organisms without impairing in the least its vaccinating properties. Copeman, who in 1891 pointed to this fact, had found that even pyogenic cocci and the bacilli of diphtheria and tuber-

[2] Lancet; quoted by Philadelphia Medical Journal, December 17, 1898.

[3] Pacific Medical Record, September, 1902.

[4] "Practice of Medicine," third edition, page 72.

culosis, purposely added to vaccine-lymph containing 40 per cent. of glycerin, perished therein within thirty days. A German Commission, which included Koch, Pfeiffer, and other well-known pathologists, subsequently found that streptococci were killed by glycerin in eleven days and the diphtheria bacillus in twenty days.

The sterility which glycerin thus insures is supplemented by another feature of importance: While the lymph obtained from a single calf can only be used for 200 or 300 vaccinations, the same amount, diluted with glycerin and sterile water, can be used for thousands. In Germany, where small-pox has been practically eradicated, a single calf has been found to suffice for 15,000 vaccinations. Not only, therefore, is glycerinated lymph *per se* under proper conditions devoid of contaminating attributes, but the amount of lymph used in a single vaccination was but one-fiftieth that required when lymph taken directly from the animal was employed.

A third feature of the problem seems to afford food for thought in this connection: *i.e.*, the protective influence of vaccination against diseases other than small-pox. Cochazko,[5] having vaccinated a child suffering from whooping-cough, soon noticed a marked improvement. From this he was led to try the effect of vaccination in five other serious cases with equally good results. Jenner, in a letter to a young Scotch landlord who had written to him that distemper in young dogs was decimating his pack, advised vaccination of all the dogs without distinction. The disease was thus checked.

More recently J. M. Mackenzie[6] traced 987 children born during the years 1900, 1901, and 1902 in the district in which he was medical officer; 706 had been vaccinated. The mortality from various causes among the latter, during the first year of life, was found to have been 8.49 per cent., while among the 281 unvaccinated children it had reached 16.01 per cent. Could such results occur in infants if we were dealing as the result of vaccination with a *pullulating pathogenic* organism? Copeman[7] observed that calves vaccinated with lymph *sterilized* by heating at a temperature of 60° C. and which "gave rise to *no bacterial colonies in plate cultivations* made from it" immunized them to the effects of lymph of normal potency which had proved successful on other calves and on children. Not only was this fact confirmed by repeating the experiment on other calves, but he states that a similar sequence of events had been observed by Chauveau and Klein.

All this tends to show that whether one or the other of the bacteria described by Quist, Martin, Ernst, Klein, Copeman, and others, or the protozoa studied by Guarnieri, Pfeiffer, Ruffer, Reed, and Councilman be the pathogenic factor of small-pox, *no germ* is introduced into the body during *vaccination* when a *properly prepared and kept* glycerinated vaccine-lymph is used under aseptic conditions. We are merely administering under these circumstances—whether we call it a toxin, a leucomaine, a toxalbumin recalling the venom series (that of the cobra capello, for instance, which becomes, when heated, as shown by Physalix and Bertrand, true vaccine), including the period of incubation—a minute dose of an agent capable of calling to inordinate activity *all* the protective functions of the organism. Else-

[5] Journal of Medicine and Dosimetric Therapeutics, May, 1894.
[6] British Medical Journal, August 15, 1903.
[7] Practitioner, page 470, May, 1896.

where[8] I have had occasion to say in this connection: "This means that all organs concerned in the immunizing process, besides the adrenals, the spleen, pancreas, etc., and the various structures concerned in leucocytogenesis, have been roused. Indeed, the period between the moment of inoculation and the entire disappearance of the virus from the blood-stream represents a continuous stage of greatly exaggerated function—akin to that to which the subject would have been submitted had he gone through the disease." Again, I have expressed the view that "vaccination is likewise benign because it does not introduce into the blood the source of the poison, the micro-organism, but a minute dose of the poison itself, which cannot therefore increase in quantity or power."

Briefly, we should look upon the minute quantity of glycerinated lymph used in vaccination nowadays, not as a pathogenic element, but as a potent *remedy* in the sense that it is capable of raising the defensive resources of our body to the disease-breeding level of our environment. Our organism is provided with defensive attributes, through its adrenal system, as remarkable in their scope as the mechanism which governs them is simple; but pestiferous towns are the creation of man, and our means of defense are often inadequate to offset the foes of life which their atmosphere, their water, their aliments, etc., contain. We have in vaccination, as now practiced, an agent capable of spurring the *vis medicatrix naturæ* which the vaccinated subject affords to its highest potential. We have, in the example given by Germany, proof that the human organism thus awakened to its fullest defensive activity is fully able to shield itself from a disease the virulence of which can only be gauged by its evil record: 500,000 deaths during the century preceding Jenner's contribution to medical science.

But why the complications occasionally met with?

Very suggestive articles have recently appeared in this connection. Dr. M. J. Rosenau, Director of the Hygienic Laboratory of the Marine-Hospital Service,[9] examined the vaccines of ten different manufacturers during a period of more than a year. All the samples examined were purchased in the open market, care being taken to buy unbroken original packages from reliable pharmacists who keep the product under proper conditions of light and temperature. With a few exceptions, the vaccine was examined before the time-limit expired, if the time was given by the manufacturer.

Of 190 dry points examined, Rosenau and his collaborators found an average of 4354 bacteria per point. A number of these points contained over 15,000 and one as high as 44,000 organisms. Of 244 tubes of glycerinated virus examined, they found an average of 1742 bacteria per tube. A number of these capillary tubes contained over 10,000 bacteria and one as high as 30,000. Pus-cocci and other bacteria, pathogenic for laboratory animals, in both the dry points and the glycerinated virus were also found. They had previously ascertained that some of the glycerinated virus marketed during the winter of 1901-2 contained an excessive number of bacteria which decreased notably after a few weeks, indicating the sale of a "green," or unripe, product; that is to say, the virus was not glycerinated a sufficient length of time before it was sold.

[8] "Internal Secretions and the Principles of Medicine," page 766.

[9] Hygienic Laboratory. Bulletin No. 12. March, 1903.

"It is also plain for our studies," they conclude, "that too much confidence was placed by the producers in the germicidal power of glycerin. The excessive impurities found in some of the glycerinated virus upon the market we believe was largely due to this overconfidence in the germicidal value of glycerin; *operators become careless,* trusting to the glycerin to purify their product. We know that glycerin is too feeble in its properties to purify vaccine matter which has *initial* contamination such as our work indicates."

After they called attention to this point they found *a marked improvement in the glycerinated virus on the market.* For instance: During the winter of 1901-2 the glycerinated virus contained an average of 4698 bacteria per tube. In the spring (April and May) of 1902 the average fell to 1058 bacteria per tube. During November and December, 1902, the average from 89 tubes examined was only 29 bacteria; the maximum, 239. Glycerinated lymph, when properly prepared and kept a sufficient length of time, they found to be freer from impurities than dry points made with fresh lymph.

Recently W. T. Howard (Jr.) and W. H. Weir, of the City Bacteriological Laboratory, Cleveland, Ohio,[10] continued the investigations of Rosenau. The practical results attained are briefly summarized as follows: "During the year 1902, samples of vaccine-virus, offered for purchase by various manufacturers to the Health Department of Cleveland, were submitted to one of us (Dr. Howard) for bacteriological examination. On account of the occurrence of several cases of tetanus and a number of cases of badly infected arms, ending, in some cases, in gangrene, following the use of certain viruses used by the city vaccinators in the summer and fall of 1901, this step was deemed necessary for the protection of both the public and the Health Department.

"The purchase of the virus used by the city vaccine physicians was made *from the samples approved by the laboratory.* After this action there was a noteworthy decrease in badly contaminated vaccinations, and no further cases of tetanus occurred among persons vaccinated by the vaccine physicians. Samples were submitted by five manufacturers. *Most of the samples were remarkably free from microorganisms.* Only three showed staphylococci and one streptococci. These organisms were not pathogenic for laboratory animals. *B. tetani* was never cultivated from these samples, and no animals died or appeared ill after inoculation with bouillon containing virus." Tables are given which forcibly substantiate these statements.

All this plainly shows that a *systematic* examination of the vaccine-lymph on the market—perhaps weekly—by the bacteriological departments of our Boards of Health would rid us of pathogenic lymphs. Manufacturers object as strongly as do physicians to untoward effects; if duly notified by the health authorities that their product is contaminated, they would undoubtedly take measures to replace it by sterile lymph. Those who would refuse to do so could easily be disposed of by publishing in medical journals reports such as those of Howard and Weir, but with the names of the manufacturers appended.

When the importance of the foregoing investigations will have been fully apprehended and the technique of vaccination will include all the precautions that

[10] American Medicine, January 2, 1904.

a more serious operation would command, there will be no more complications, and sources of apprehension will be eliminated. I may err, but it seems to me that, fully reassured on this score, the public at large will aid us in completing Jenner's work.

C. E. de M. Sajous.

Cyclopædia of Current Literature.

ACONITE AND VERATRUM VIRIDE.

So much has been written as to what drugs will do, that, if one were to judge by published reports, the conclusion would seem inevitable that with only a few drugs we could obtain almost any result required, which is manifestly not true. The drugs to which the author devotes his attention are aconite and veratrum viride. He asserts that the [illegible]al action of the two drugs is [illegible]hat what he has to say of [illegible]onite can be applied with equal force to veratrum. The physiological action of aconite may be stated thus: Primary action—stimulation of the peripheral nerve-endings; stimulation of the vasomotor mechanism; powerful stimulation of the respiratory center. Secondary action—paralysis of the overstimulated peripheral nerve-endings; pronounced depression of the heart; lowering of the blood-pressure; reduction of temperature. The indications for the use of these drugs then are: To relieve pain, reduce temperature, promote diaphoresis, slow the heart, and reduce blood-pressure. To relieve pain aconite is dangerous and inferior to other remedies. As a diaphoretic it does not compare with Dover's powder or pilocarpine. It is inferior to digitalis for slowing the heart. Bloodletting is to be preferred to it for lowering the arterial tension. And, finally, the reduction of fever by means of drugs is not a thing to be very greatly desired. W. B. Hill (Journal of the American Medical Association, December 12, 1903).

ACONITE AS A VASODILATOR.

There appears to be a growing tendency toward the more extensive employment of aconite in certain cardiac and circulatory conditions. One excellent authority lauds it highly as "much the best vasodilator which we possess and much more persistent in its action on the vessels than any of the nitrites," commending the drug above all other means to secure reduction of arterial tension in chronic renal disease. Other authorities condemn it utterly in cardiac hypertrophy, and specifically all advise against its employment when it becomes necessary to produce widespread vasomotor relaxation. So great a variance in practice would apparently indicate that the mode of action of this drug on the heart and arteries had not yet been determined. On the contrary, we find that authorities are in very general agreement as to its effects on the cardiovascular system. Our knowledge is not yet complete in all details; still, certain definitely established facts stand out from the mass of pharmacological data which experimentation has accumulated during recent years regarding the action of this drug. Its effects on the mammalian heart and circulation may be said to comprise two more or less definite and distinct periods, viz.: vagus stimulation and vagus paralysis.

The former of these two stages is one of the greatest interest to the physician, as the developments that it embraces are those which result from the administration of medicinal doses of aconite in individuals who are not subject to idiosyncrasy toward its action. The stage of vagus paralysis represents the lethal effects of aconite upon the cardiac mechanism.

Following the administration of therapeutic doses of aconite there are produced a slowing and steadying of the pulse with slight fall of blood-pressure. The concordance of authority is that this effect is mainly, if not entirely, brought about by stimulation of the cardiac inhibitory center in the medulla oblongata. Most authorities deny the influence of peripheral (vasomotor) factors in the production of this primary slowing and reduction of pressure. There is some evidence of an action on some part of the vasomotor mechanism, for it has been observed that after section of the vagi in the neck the administration of aconite was notwithstanding followed by a slight slowing of the heart, which would indicate that the peripheral inhibitory nerves were involved in the result. The slowing was exceedingly slight as compared with that produced when the vagi were intact (Mathews). Whatever share the vasomotor mechanism takes in the slowing of pulse and primary fall of blood-pressure, it is, as matters now stand, a very subsidiary one as compared with vagus stimulation, and can contribute but slightly to the result. The reduction of blood-pressure is produced chiefly by decrease in the force of the heart's action and not by vasodilation: is, in short, a cardiac, and not an arterial, phenomenon.

Large doses of aconite bring about a gradually increasing vagus paralysis marked by quickening of the pulse from stimulation of the accelerator and later from paralysis of the vagi. In advanced stages of aconite poisoning the sequence of ventricular upon auricular contraction is interfered with (Mathews, Cash, and Dunston), a condition of ventricular delirium supervenes, the muscular irritability of the heart is destroyed, diastolic arrest finally resulting (Boehm, Wartmann). After the stage of acceleration has set in the blood-pressure becomes extremely irregular, rising and falling in obedience to alterations in the cardiac movements. The vasomotor center seems eventually to become paralyzed, for it has been found that galvanization of the efficient vasomotor nerves still caused a marked increase, while afferent nerve-stimulation produced no change in tension. No dilatation of the peripheral arterioles has been observed to result from aconite such as follows so speedily the use of the nitrites.

Aconite has been chiefly employed as a vascular sedative. By diminishing the force and frequency of the heart's action it lessens blood-pressure, and in doing this tends to allay spasm and relieve undue excitability of the nerve-centers. Cardiac sedation is, however, a very different thing from vasodilation, and in conditions of excessive peripheral resistance with high tension and cardiac hypertrophy, such as exist in chronic nephritis, it is doubtful whether in aconite we possess a substitute for vascular drugs of acknowledged potency, such as the nitrites. It is unnecessary to dwell upon the fact that in the cardiac hypertrophy of renal disease and other chronic toxæmias the resistance is primarily in the capillary network. Circulatory crises in such cases demand

relief to the heart from the peripheral obstacle. On *a priori* grounds a grave question-mark may be placed against the employment of aconite under such circumstances. If the experimental evidence at our command is correct, aconite is not an active vasodilator. By means of its action in diminishing the force of the cardiac pump it may possibly to some extent relieve the arterial tension under the operation of Hale's law, that the real pressure of the blood in the arteries depends on the proportion which the blood thrown out of the left ventricle bears to the quantity that can pass through the capillary arteries into the veins at that time. In the face of the extremely vicious peripheral conditions which exist in renal disease, it is hardly to be believed that the relief obtained in this way will prove adequate. Moreover, any advantage secured in this manner is gained to the jeopardy of the heart. The hypertrophied heart of renal disease inevitably tends to failure, and it is impossible to predict in any given case that the myocardium is not already the seat of degeneration. Under such circumstances, by interfering with cardiac nutrition, aconite may work decided harm. The possibility of such an effect is not lessened by the fact that larger doses than ordinary will be required to produce its physiological action on the heart in cases of hypertrophy with tension, because high intracardiac pressure renders vagus inhibition more difficult to secure. Toward no drug in the entire pharmacopœia is idiosyncrasy so often manifested. Numerous cases are recorded of dangerous syncope and even death having resulted from small medicinal doses of aconite (Ferrand, Leigh, Woodbury). Ferrand, indeed emphatically condemns it as a dangerous drug, the use of which should be confined to the laboratory. While few would go the full length of Ferrand's condemnation, great caution is undoubtedly necessary in its employment, owing to the unexpected susceptibility which is often manifested toward its action. We may well pause before undertaking a more extensive use of this drug in cardiac therapy. Arthur R. Elliott (Editorial in New York Medical Journal and Philadelphia Medical Journal, January 9, 1904).

ALCOHOL, THE LEGITIMATE THERAPEUTIC USES OF.

The contact of strong alcohol with the mucous membranes of the mouth, œsophagus, and stomach acts reflexly through the medulla to cause vasoconstriction, which raises the blood-pressure, and hence stimulates the heart. After alcohol is absorbed (it circulates as alcohol) it causes vasodilation and a fall in blood-pressure. It is certain that overdoses of alcohol after absorption are depressant to the heart-muscle, to the muscle-fibers of the blood-vessel walls, and to the vasomotor center in the medulla. On these considerations the author bases his advice on the use of alcohol in derangements and affections of the heart. With regard to the utility of alcohol in combating poisons circulating in the blood, clinical experience is not conclusive. Laboratory experiments should be undertaken in order to settle this point. O. T. Osborne (New York Medical Journal and Philadelphia Medical Journal; from Journal of the American Medical Association, December 5, 1903).

ANÆMIA, INFANTILE.

Anæmia from any cause in infancy, if severe enough, gives rise to the peculiar

symptoms grouped under the headings "anæmia splenica infantum" and "anæmia splenica pseudoleukæmia" of von Jaksch. Consequently these are not specific blood diseases, but owe their peculiarities merely to the "infancy factor" and that they represent merely different stages of the same condition. The common cause of severe anæmia in infants is gastro-intestinal catarrh, leading to the absorption of toxins either from the growth of micro-organisms, or possibly from the formation of poisonous by-products of digestion. Leukæmia of infants is not a separate disease, but merely a still more advanced stage of this anæmia: that is, the difference between them is one of degree and not of kind. Leukæmia of adults is a return to the condition of an infantile anæmia and, being rare, its causation is probably so narrowed down as to be practically specific. C. Riviere (Lancet, November 21, 1903).

ANTITOXIN IN DIPHTHERIA, THE ADMINISTRATION OF, BY THE DEPARTMENT OF HEALTH DURING 1902.

There is no longer any doubt as to the curative action of antitoxin in diphtheria. Of 15,792 cases injected with antitoxin furnished free of charge by the department of health or by its inspectors, 1860 died: a case-fatality of 11.8 per cent. If the cases moribund when injected (722 in number) are deducted, the case-mortality is further reduced to 7.5 per cent.

The one fact, important, if not new, brought out in this report is the great advisability—the most imperative necessity—of the earliest possible administration of antitoxin. Of 1702 cases injected on the first day of the disease, only 85 patients died (including moribund cases): a case-mortality of 4.9 per cent. Comment is unnecessary. J. S. Billings, Jr. (New York Medical Journal and Philadelphia Medical Journal, December 12, 1903).

ANTITUBERCULOUS SERUM, THE NEW.

Notwithstanding the almost total failure of Marmorek's antistreptococcic serum to accomplish the remedial effects originally claimed for it, the announcement that the young Austrian bacteriologist who, for nearly ten years, until quite recently, has been connected with the Pasteur Institute in Paris, had discovered a new serum for tuberculosis, attracted world-wide attention in medical circles. On November 17th last, at the meeting of the Academy of Medicine in Paris, Marmorek made a definite announcement of the details of the method by which his new serum is prepared and the line of thought that has led him up to its discovery. We have had an opportunity to see an early copy of his original paper, and while we fear that his first announcement of results is, as is usually the case with remedies for tuberculosis, overenthusiastic, we feel that our readers' interest in the subject and certain suggestive details of the biology of the tubercle bacilli and its toxin justify our giving the new remedy and theory some attention.

Many of those who were present at the International Medical Congress at Paris in 1900 will recall the fact that Marmorek presented a paper to that body in which he described the various types of tubercle bacilli which he had classified in his laboratory at the Pasteur Institute. He dwelt particularly on the cultural characteristics of the micro-organisms and demonstrated that tubercle bacilli retained their primitive

characteristics only for a short time after being transferred to an artificial medium. It is in the tubercle bacilli grown in artificial media that the toxin called tuberculin, originally discovered by Koch, is formed. There are many reasons for doubting that this is the real toxin produced by the tubercle bacillus when it grows in animal tissues. Small amounts of tuberculin produce no reaction in healthy human beings. They produce, however, a very serious reaction in those suffering from even minimal lesions of tuberculosis. Finally, small injections of tuberculin produce very little effect on animals or human beings suffering from very severe forms of tuberculosis. Marmorek considered that this series of contradictions quite justified him in rejecting the notion that tuberculin was the true toxin of tuberculosis.

His effort was to secure the growth on artificial media of tubercle bacilli that would retain their primitive characteristics. In human beings and in animals the tubercle bacillus normally has its habitat either in leucocytes or in giant cells. Marmorek accordingly tried to grow the tubercle bacilli in the presence of leucocytes freshly obtained from animal tissues of living animals. He failed, however, to secure the persistence of the primitive characteristics of the tubercle bacilli by this method, as it is very difficult to secure growths of the bacilli. His next step was to prepare a leucotoxic serum. This was secured by injecting the white cells of small animals into the calf and afterward withdrawing its blood-serum. On this he was able to secure a rather abundant growth of tubercle bacilli. He had noted, however, that in laboratory animals, as also in human beings, in cases of generalized tuberculosis, the liver is usually the last organ attacked and is often found free from the disease. There seems to be some special resistive quality in its substance therefore. He argued that this quality could be used to increase the vitality of tubercle bacilli.

Accordingly, to this leucotoxic serum he added bouillon made from liver substance to which a slight amount of glycerin was added. Grown on this glycerinated leucotoxic liver bouillon the tubercle bacilli did not thrive well except by careful selection of what seemed to be hardy colonies. Bacilli that did grow, however, retained their primitive characteristics much longer than on any other artificial medium, and failed entirely during their growth to produce any tuberculin, though they did produce another characteristic toxin. By the use of graduated doses of this toxin, Marmorek was able to obtain some immunity to tuberculosis in the lower animals, so that after a time the leucocytes were not only inglobed, but digested tubercle bacilli were injected into the animal and so kept it immune from the effects of the micro-organism.

By graduated doses of this product the blood-serum of the animal acquired antitoxic qualities, and this could be used for the protection of other animals and for hastening the cure of tuberculous lesions, especially in rabbits, which are not so sensitive to tuberculosis as guinea-pigs. Very large doses of the serum have to be employed for this purpose, but these animals present little resistive vitality to the disease, and in the larger animals and man it was hoped that their natural resistive powers would so aid the action of the serum as to require smaller doses. In nearly two thousand cases now the serum has been used on human beings in the hospitals of

Paris and in various parts of France. Necessarily, at first only hopeless cases could be secured for purposes of observation. Even with regard to these cases the results were so satisfactory as to tempt physicians to further experiments.

Many of the symptoms even of tuberculous meningitis are relieved by the injections of the serum. The paralysis lessens, the coma disappears, the fever is less marked, and the vasomotor symptoms are diminished. So far, however, no case of meningitis has been cured. In severe cases of pulmonary tuberculosis with cavities and abundant expectoration, with many bacilli, the beneficial effect is noted very soon after the injections have begun. The expectoration lessens in amount, the number of bacilli decrease, and the patient's general condition improves. Some of the apparently hopeless cases are practically cured, though sufficient time has not elapsed to announce an absolute cure. In milder cases of pulmonary tuberculosis the effect is immediate and striking.

Hectic fever disappears rapidly under the treatment, and night-sweats and the loss of appetite consequent upon the fever disappear with it. Hectic fever, far from being a contra-indication to the use of the serum, constitutes a very favorable condition for the demonstration of its efficacy, and these cases have been particularly sought out by Marmorek and his assistants in order to make the value of the serum clear.

It is in cases of surgical tuberculosis, however, that the serum is claimed to give the best results. In complicated Pott's disease, with abscesses and fistulæ, rapid improvement is noted shortly after the injections are begun. Hip-joint disease is as favorably affected as is Pott's disease, and abscesses are absorbed without delay and any unfavorable sequelæ under the influence of the antituberculous serum. Marmorek considers most of the cases of idiopathic pleurisy as of tuberculous origin. In this he is justified by many bacteriological tests of the injection of apparently the simple serous transudate of pleurisy into animals with the consequent development of tuberculosis. Pleurisy is rapidly benefited by the serum in Marmorek's hands. The exudate is rapidly absorbed; the pain and discomfort, and especially the dyspnœa, are diminished; and the patient's general health, if at all run down, improves under the serum injections.

Unfortunately, in the hands of observers outside of France the new serum has not proved so beneficial as in its inventor's. Some German investigators have even reported harmful results from its use. Marmorek's resignation from the Pasteur Institute is said to have been due to a disagreement with his colleagues over the preparation of the serum for commercial purposes, its exploitation in the press, and some doubts as to the results obtained with it. Generally, in Paris medical circles there is an air of incredulity with regard to it. While the subject is of interest, it is doubtful if any great hopes should be raised because of it. Some of the work done may be as valuable as it is interesting and suggestive. As Marmorek himself says, at the conclusion of his article, many more observations under varying circumstances will have to be made before its true place in medicine can be appreciated. Though life is almost as short as in Hippocrates's time, art is quite as long, and we must be patient. Editorial (Medical News, December 19, 1903).

APPENDICITIS, INTESTINAL PARASITES IN.

An intestinal parasite causes appendicitis through its presence as a foreign body; and by its struggles may bring about a perforation and peritonitis where otherwise none would have occurred. *Trichocephalus dispar* has been proved to cause an inflammation of the appendix by injuring the mucous membrane while sucking the blood of the host. *Ascaris lumbricoides* has been found with a material similar to that in trichocephalus in its intestinal epithelium, and therefore is supposed to attach itself to the mucosa of the host and thus start the processes which result in appendicitis. No proof has been found that *Oxyuris vermicularis* causes an appendicitis except in its rôle of foreign body. J. C. Hubbard (Boston Medical and Surgical Journal, December 3, 1903).

BILIARY CIRRHOSIS AND ANGIOCHOLITIS.

Pathology owes to the French the investigation of angiocholitis and biliary cirrhosis. The surgeon must be thoroughly acquainted with the picture of biliary cirrhosis. Fever, jaundice, colic, and obstruction of the biliary and cystic ducts are not to be regarded solely as symptoms of gall-stones, as they may be present without the latter. There is no such thing as "gall-stone disease" as a clinical entity; infectious cholecystitis can give the same picture as cholecystitis with gall-stones. Intermittent fever is characteristic of the catarrhal process in the gall-bladder or in the bile-ducts of the liver. Constant or remittent fever is characteristic of suppurative inflammation of the same parts; yet the type of the fever cannot serve as a positive criterion of the character of the inflammation. The suppurative process rather than the catarrhal is accompanied by the signs of hepatic insufficiency. The severity of angiocholitis depends upon the extent of the lesions. A localized suppurative angiocholitis can get well spontaneously without an operation. As it is often impossible to distinguish catarrhal from suppurative angiocholitis, and as operation has saved even very severe cases of angiocholitis, it is indicated whenever the condition of the patient grows steadily worse.

As regards biliary cirrhosis, the author concludes: Until recently the value of angiocholitis in the clinical picture of biliary cirrhosis has not been clearly defined, and therefore the treatment of biliary cirrhosis has not always been correct. Fever, pain, colics, hepatic insufficiency, in the clinical picture of biliary cirrhosis indicate the addition of an angiocholitis. This complication hastens the course of the cirrhosis. Until recently most surgeons did not look with favor upon the surgical treatment of biliary cirrhoses. Biliary cirrhosis without angiocholitis can only be treated medically, but, if no relief is obtained from the pain and fever, an operation may be necessary. The history of jaundiced patients must be carefully taken in order to find out the possible occurrence of cholæmia. In all cases of inflammation of the biliary tract the blood-serum must be examined for bile-pigments. G. I. Volyntseff (New York Medical Journal and Philadelphia Medical Journal; from Roussky Vratch, October 25, 1903).

BLOOD PRECEDING COAGULATION, MACROSCOPICAL MODIFICATION OF THE.

A new phenomenon, visible to the naked eye, has been observed by V. Duc-

ceschi (Archivio Italiani de Biologie, September 10, 1903) in a few drops of blood obtained from the finger-tip, and placed in the center of a watch-glass; after inclining the latter repeatedly at intervals of several seconds, and then holding it up to the light, there are noticed in the depth of the blood next to the glass a number of very fine, whitish points or granules contrasting markedly with the blood. These appear within from forty seconds to two minutes after the blood is removed from the body, and rarely later. The granules usually have a diameter of from $^1/_4$ to $^1/_2$ millimeter, and are no longer visible when coagulation sets in. Mixing the blood with an equal quantity of a 1-per-cent. solution of ammonium oxalate prevents the formation of the granules. If the granulations be placed on a slide, dried in the air, fixed with a mixture of alcohol and ether, and stained with 1-per-cent. methylene blue, they acquire a diffuse blue color containing small points of a deeper blue. The surrounding red blood-cells have a greenish hue. Under the high power of the microscope the bluish masses are recognized as clumps of blood-platelets, more or less altered, and of a smaller number of leucocytes whose nuclei stain much more distinctly than the platelets. If the granules be examined during the early stage of their formation and while they are rather small, it will be seen that there is little or no fibrin; the entire phenomenon, therefore, is one which precedes coagulation. If a beaker be nearly filled with the fresh blood of a rabbit, it will be observed that the granules form not only at the bottom, but also along the side, provided the blood be kept in motion by inclining the beaker several times; in blood which has been kept perfectly quiet the granules appear in but scant number. It is well known that the blood-platelets have a tendency to adhere to surfaces other than those of the normal wall of the blood-vessels, and to gather in clumps. This phenomenon may be regarded as genuine agglutination, and is held by some authors as distinct, morphologically and physiologically, from coagulation. It will be interesting and perhaps of practical value in clinical medicine to investigate the possible variations of the above phenomenon in various morbid conditions, inasmuch as a few investigators have observed marked oscillations in the number and even the complete disappearance of the platelets in various diseases. (Medical News, December 26, 1903).

BRIGHT'S DISEASE, DRY HOT AIR IN THE TREATMENT OF.

The key in the successful employment of dry hot air in the treatment of Bright's disease, or *any other disease*, consists in bearing in mind that the agent is simply a rational therapeutical measure, exhibiting a known and constant physiological action, which furnishes a logical basis upon which to consider its application to a given case if the case in question presents a known pathology. It will, alone and unaided, cure some disease processes; others will require that additional agents be combined with it; and in still others all the curative resources at our command will not suffice to effect the patient's recovery. It exhibits in a marked degree the capacity to increase our power to overcome pathological conditions, and, because of this and the effectiveness of its influence in many situations unmanageable with other remedial measures, it is entitled to a prominent position in our

armamentarium. C. E. Skinner (New York Medical Journal and Philadelphia Medical Journal, December 12, 1903).

BRONCHIAL GLANDS, ENLARGED.

Enlarged bronchial glands, as met with in children, are of importance because of their great frequency, the manner in which they are overlooked and ignored, and the possibility of their becoming tuberculous. A suggestive combination of symptoms which points to the condition is: enlargement of the cutaneous veins over the upper part of the chest; some deficiency of resonance over or on either side of the manubrium, and a venous hum in the same position when the head is retracted; especially if these occur in a thin, delicate-looking child, suffering from a cough for which no cause can be detected in the throat or lungs and from slight intermittent evening pyrexia without assignable cause. J. R. Clemens (Medical News, December 12, 1903).

CANCER, TREATMENT OF, BY CAUSTIC PASTE.

Cutaneous cancer is traceable in almost all cases to preceding local irritation. There may be other causes, but infection is probably a source of the disease. Benign epitheliomatous proliferation may be infectious. Cancer is curable, but if the disease is allowed to progress the patient may not be. Only the most radical treatment is to be tolerated. Caustic paste, with subsequent caustic dressing, is radical, and is often preferable to the knife. The earlier cancer is treated, the less likelihood is there of relapses or metastases. The x-ray bids fair to be as effective as caustics. The writer advocated the use of pastes in the treatment of superficial cancers only. C. W. Allen (Medical Record, December 12, 1903).

CHICAGO HORROR, THE LESSON OF THE.

As was only to be expected, the appalling disaster at Chicago has set the authorities everywhere, not only in America, but in most of the large cities of Europe, busily to work, overhauling the conditions of the theaters and other places of public assembly in regard to protection from fire. Criticisms of existing conditions and suggestions for general improvement are freely bandied about, and the wave of apprehension seems to have aroused the usual state of excitement which seizes upon the people generally, whenever a long-impending, but disregarded, catastrophe becomes an accomplished fact and brings home the lesson of neglected precautions.

This is only human nature. A serious outbreak of typhoid in one city is needed to cause the authorities of other cities to set their houses in order, literally and metaphorically. An epidemic of small-pox elsewhere rouses people from their apathy in regard to vaccination. An explosion, like that in the Tarrant Building, in New York, calls attention to the violation of the laws concerning the storage of explosives. An appalling railway disaster, such as happens only too frequently, calls attention to conditions by which safety is habitually disregarded for the sake of other considerations. But the worst of it is, this searching of heart continues but for a few days. The affair becomes a nine days' wonder, and ere long people drop into their former habits of reckless indifference, until some new disaster occurs to wake them up to a sense of the needless peril they daily incur.

Fire rarely breaks out in the auditorium of a theater. It originates al-

most always behind the footlights. There are there fewer people, and consequently less danger from panic, and it is panic that is almost always responsible for the great loss of life that occurs. Given the panic, and a large part of the evil is sure to accrue, even though the alarm be a false one. It is obviously clear, therefore, that there are two main points to safeguard: To lessen the ground for a likelihood of panic, and to obviate its evil results should it occur. The first must be effected by the power to confine, temporarily at least, the fire behind the proscenium, and by taking means to prevent the auditorium at a critical moment from being plunged in darkness. The second by obviating all obstructions, both internal and external, to a speedy emptying of the theater.

To accomplish the first aim various methods are available: real fireproof materials, the asbestus screen, automatic water-sprinklers from the proscenium, etc. To effect the second, the auditorium should be fitted with a subsidiary lighting apparatus that can be operated from the front of the house; all overcrowding and all blocking of the aisles and staircases should be rigorously prevented, and ample exits opening outward and incapable of being secured against a rush from within should be provided; and, further, no place of public assembly should be allowed to be wedged in between other buildings, but all should be compelled to be open on the sides by at least an alley-way communicating with the street, into which the side doors should open.

Many of these points are already matters of law in most cities. The gravest fault of all is that they are not enforced. We see in New York notices in the cars and elsewhere of a health board ordinance announcing that any person spitting in the car will be liable to fine and imprisonment—an ordinance in every way commendable on the score alike of health, decency, and æsthetics. Yet we believe we can say with truth that we have never once traveled in a car—surface or elevated — during the past twelve months without seeing one or more persons spitting on the floor. And as in this, so is it in everything else. We have laws enough,—good laws, most of them,—but, because responsibility is in almost every matter too much divided, they are never, or only spasmodically and sporadically, enforced, and consequently they are broken broadcast with impunity.

The lesson of the Chicago disaster should be to have not too many laws, but to have adequate and, above all, practical laws; to have a punishment clearly defined and "fitting the crime" —neither too lax nor absurdly stringent; and then to insure their enforcement by having no divided responsibility, but a specific person or persons, severally and collectively liable in heavy punishment for their nonenforcement. Better no laws at all than laws which are only spasmodically enforced "every little while." If the proper function of punishment is that of a deterrent to others, not an act of vengeance, and that is the commonly accepted view in civilized countries, then it should follow as inevitably on the discovered offense as a burn follows the grasping of a piece of hot iron. Editorial (New York Medical Journal and Philadelphia Medical Journal, January 9, 1903).

DISLOCATION OF THE SHOULDER, ANTERIOR, TREATMENT OF.

In attempting to reduce dislocations of the shoulder the following methods should be used in the order given: Di-

rect reposition, extension and counter-extension, Kocher's method, and arthrotomy. The author reports one case in which arthrotomy had to be resorted to to perform reduction. In this case the greater tuberosity of the femur had become detached and was found occupying the glenoid cavity. G. T. Vaughan (Medical News, December 5, 1903).

DIVERTICULUM ILEI.

This condition is one of great rarity, and males are more frequently afflicted. Careful attention should be paid to any granulations at the navel, before and after the dropping of the cord. It will be wise at all times to remember the possibility of an included bowel and tie the cord at least two inches from the umbilical ring. A radical operation is safest, to do away with the possibility of intestinal obstruction through diverticula later in life. A. A. Strasser (Medical Record, December 12, 1903).

DYSENTERY ANTITOXIN.

By growing the dysentery bacillus in a somewhat highly alkaline broth a soluble toxin is obtained. Certain animals, notably the horse and rabbit, are highly susceptible to this toxin. The toxin is fairly stable, and, though destroyed by an exposure to a temperature of 80° C. for one hour, is not destroyed by exposure to a temperature of 70° C. for the same period. When injected into suitable animals (for example, the horse), the toxin gives rise to a powerful antitoxin. The combination of the toxin and antitoxin *in vitro* does not take place immediately, but requires a certain time, and the rate of combination varies with the temperature. C. Todd (British Medical Journal, December 5, 1903).

DYSENTERY BACILLUS, THE. A STUDY IN AGGLUTINATION.

The writer conducted a series of researches to determine whether the different varieties of the Shiga bacillus would react with the serum of patients suffering from various diseases; whether the acid and nonacid types would react differently with the same serum, and whether the blood of infants contained similar agglutinating substances to the blood of adults. The author appreciates that his work is not, as yet, conclusive, but believes that it justifies the following deductions: That the serum of nondysenteric adult patients does agglutinate the Shiga and acid type (Flexner) bacilli frequently in a 1 to 20 dilution and occasionally in a dilution as high as 1 to 100. That this agglutinating power is wanting in the blood of nondysenteric young infants (under 1 year), rarely being present even in a 1 to 10 dilution. That there are certain differences in agglutinating capability between the Shiga and acid type (Flexner) bacilli, the former in these tests clumping somewhat more readily than the latter. That a decided and prompt reaction, under two hours, with the *Bacillus dysenteriæ* in dilutions of 1 to 20 or higher in young subjects (under 1 year) and in 1 to 50 or higher in older persons who have not recently suffered from chronic or subacute intestinal disease is probably pathognomonic of acute epidemic dysentery. L. B. Pillsbury (Medical News, December 5, 1903.

EYE, TREATMENT OF SOME DISEASES OF, BY WARM, MEDICATED SPRAYS.

Spraying with warm, medicated sprays is indicated in almost all diseases of the conjunctiva, as acute catarrhal, chronic, epidemic, gonorrhœal, trachomatous, and phlyctenular conjunctivitis;

in diseases of the cornea, as ulcer; infiltration and interstitial keratitis, and in iritis. D. T. Marshall (Medical News, December 26, 1903).

FINSEN LIGHT AND ROENTGEN RAYS.

The Finsen light is generally recognized as constituting the best-known treatment for lupus vulgaris. In order to secure good results it is necessary to employ the large lamp used by Finsen. In lupus erythematosus the Finsen light, in our hands, has effected some improvement, but no cures. In certain cases of lupus vulgaris the Roentgen rays give most gratifying results. The Roentgen rays have certain distinct limitations in the treatment of cancer of the skin. The rays will cure practically all patients having superficial cancer, and some with carcinoma of the integument. But the majority of deep-seated cutaneous and subcutaneous growths do not do well. They may improve for a while and deceive both the patient and the physician, but relapse, and subsequent spreading are common. Buccal epithelioma and deep-seated epitheliomas involving the lip had better be treated surgically and subsequently subjected to radiotherapy. The Roentgen rays are extremely valuable in acne, in which disease the most brilliant results are obtained, even in long-standing cases. The Roentgen rays are of value in many cases of eczema. In psoriasis the effect of the Roentgen rays is but temporary. The Roentgen rays find a large field of usefulness in dermatological practice. In addition to the dermatoses mentioned the rays have been found to be beneficial in sycosis, lichen planus, hypertrichosis, ringworm, favus of hairy regions, tuberculosis of the skin, mycosis fungoides, blastomycetic dermatitis, localized pruritus, etc. In the treatment of diseases of the skin the liability to the production of a burn, with ordinary precautionary measures, is extremely slight. J. F. Schamberg (American Medicine, December 19, 1903).

HUMAN MUSCLE, THE CAPACITY OF, FOR WORK.

A muscle working under normal physiological conditions is neither "loaded" nor "after-loaded." A muscle will not contract isotonically nor isometrically under normal physiological conditions. When a Mosso or a spring ergograph is used, a large part of the energy expended by a muscle during a period of work is lost. This loss occurs in easing back the weight or the spring to its position of rest or to the zero point. A recognition of the conditions under which a muscle works and the end to be attained is necessary when an interpretation of ergographic results is to be made. A normal muscular contraction ("normotonic") consists in contraction, relaxation without load, rest. A new form of weight ergograph has been devised which allows the human muscle to work at a greater advantage than that given by any previous form of ergograph, because it permits "normotonic" contractions. A human muscle is capable of doing a far greater amount of work by the use of the new ergograph than has been previously shown in ergographic work. A muscle can work over periods of long duration without fatigue when the conditions are favorable. These experiments confirm the conclusion stated by Maggiora that there is a definite weight with which one can perform the greatest possible work. The physiological limit of a muscle for con-

tinuous work is modified by the rate, load, and interval, or by rest and work. J. G. Holmes (Journal of the American Medical Association, December 19, 1903).

HYPERNEPHROMA.

An affected kidney may not be much increased in size, but is generally very large. The general outline of the organ is usually retained, and the surface is almost always nodular, although occasionally there is no external evidence of the growth. The new growth is either encapsulated within the kidney substance or just below the kidney capsule. On section the tumor-tissue is generally yellowish, with a firm and distinct stroma, which gives the growth a nodular appearance. Some of these nodules usually show areas of hæmorrhage and degeneration. The kidney-tissue is either destroyed or pressed upon and distorted by the new growth. Paul Thorndike and J. H. Cunningham, Jr. (Boston Medical and Surgical Journal, December 3, 1903).

HYPNOTISM.

Gabrielle Bampard, the accomplice of Eyraud in the sensational murder of a bailiff in Paris, some years ago, has been released from penal servitude to which she was sentenced when her accomplice went to the guillotine. Her counsel, anxious apparently to prove her complete innocence, arranged a truly dramatic performance with his client and Professor Liégeois as the players. In the presence of a number of stenographers and photographers the woman was hypnotized by the professor, and gave an extraordinary representation of her supposed struggles to resist a similar hypnotic spell by Eyraud, her gradual enforced compliance with his wishes, and her subsequent assistance in the murder. The scene, we learn, was weird and startling. The woman struggled, shrieked, and groaned, pleaded and coaxed, and finally gave a representation of sitting up all night with the corpse, and a flight in the morning to America.

It is hard to convict a woman of a crime in France. Can we wonder that this creature was acquitted in a French court, when this new audience of disinterested spectators was so thoroughly imposed upon? Hypnotism is a purely subjective phenomenon, an effect on the imagination of powerful suggestion, which, powerful as it may be, cannot be strong enough to force crime upon an unwilling subject. Had the woman said she had been frightened into compliance, the statement might be believed, but that she unconsciously went through any such scene as that above described not once, but twice, is incredible. The whole affair suggests the stage too strongly: the woman gave what she thought was a representation of how a woman would behave under the influence of what hypnotism is supposed by the ignorant to be, and an artistic representation undoubtedly it was. Criminals do not, however, commit crimes in this center-of-the-stage, turn-the-limelight-on-me manner. Shrieks, groans, gestures, and appeals to the gallery belong solely to stage crime, and are not used by the professional, who must needs act quickly and quietly.

We are inclined to think that the counsel knew what he was about, and that Gabrielle, if not carefully rehearsed in her part, which is likely, possesses a crude dramatic instinct not uncommon in the hysterical subject. The professor, we fear, was an unconscious dupe, as his unfortunate *confrère* was many years ago in his experiments on

the effects of drugs by mere suggestion. Charcot, it will be remembered, thought he had made a discovery of stupendous importance, only to learn through Ernest Hart, then editor of the British Medical Journal, that he had been tricked by a gang of professional "subjects," who had worked as supposed victims of hypnotism with all the traveling hypnotic fakirs in the country fairs of France. These supposed subjects are to be found in this country. They have learned to act after a certain manner and even to exhibit no signs of pain when pricked with needles through the cheek or tongue. Dupes who have given large sums of money to "learn" hypnotism have been induced by these charlatans and their employers to believe they had acquired a power of similarly influencing anyone whom they desired, only to discover their error when derision on the part of their friends greeted their mysterious, if not ridiculous, maneuvers.

Verily the people love to be humbugged, and the French seem to imperil their reputation as a nation hard to deceive whenever the deception is sufficiently equipped with dramatic paraphernalia. Editorial (New York Medical Journal and Philadelphia Medical Journal, December 26, 1903).

HYSTERIA.

We must look to the unconscious impressions of infancy and childhood for the etiology of hysteria. The disease primarily is purely a psychosis. The pathology will be located in the adrenal system. The treatment for hysteria *per se* should be psychical. Suitable resorts should be erected for properly treating and caring for the afflicted among the poor. By such treatment hysteria would soon be on the decrease instead of on the increase, as it has been for years. W. B. Young (Medical News, December 12, 1903).

IODISM, PREVENTION OF.

Iodism is due to the accumulation in the body of large quantities of alkaline iodides. The mucous membranes secrete this substance, and its sudden appearance in the body results in a catarrhal condition of the mucous surfaces. The prevention of iodism lies in the administration of iodine salts in mucilaginous substances, as these prevent their rapid distribution in the system; in dividing the daily dose into many small doses; in administering the drug by enema; in substituting other drugs, such as iodide proteids and iodide fats for the alkaline iodine salts; in the use of iodipin when iodine is indicated subcutaneously. F. Lesser (Deutsche medicinische Wochenschrift, November 12, 1903).

LONG LIFE.

The writer sums up the main points to be observed by those desirous of a long life, as follows: Moderation in eating, drinking, and physical indulgence. Pure air out of the house and within. The keeping of every organ of the body as far as possible in constant working order. Regular exercise every day in all weathers, supplemented in many cases by breathing movements and by walking and climbing tours. Going to bed early and rising early, and restricting the hours of sleep to six or seven. Daily baths or ablutions according to individual conditions, cold or warm, or warm followed by cold. Regular work and mental occupation. Cultivation of placidity, cheerfulness, and hopefulness of mind. Employment of the great power of the mind in controlling passions and

nervous fear. Strengthening the will in carrying out whatever is useful, and in checking the craving for stimulants, anodynes, and other injurious agencies. Sir H. Weber (British Medical Journal, December 5, 1903).

MALARIA, CHRONIC.

The complications of malaria involve, with the greatest frequency, the following organs in the order given: The digestive tract; the genito-urinary system; these two systems are involved with equal frequency. The heart and blood-vascular system. The respiratory system. Nervous system. Diseases of the bones, muscles, and joints. Diseases of the skin. Diseases of the lymphatic system. Diseases of the organs of special sense. Diseases of metabolism; notable among these are diabetes and amyloid degeneration. John C. Hemmeter (American Medicine, November 14, 1903).

MEATOTOMY PLUS MEATORRHAPHY.

Much time is saved when the meatotomy is performed as a preliminary to the employment of the urethroscope, cystoscope, or segregator. The wound usually heals by first intention and the tedious process of granulation is thus avoided. No after-treatment is needed, the patient being thus saved much discomfort and pain and the surgeon unnecessary responsibility. J. P. Lord (Journal of the American Medical Association, October 31, 1903).

MECHANOTHERAPY AND MASSAGE.

It must not be assumed that mechanical or manual therapy is merely massage and exercises as conceived by the average physician: the scope is by no means confined to passive movements and muscle-kneadings, and substitute exercises for invalided folk who cannot move about and require an hour's rubbing to get the equivalent of a five-mile walk, or loosening of the joints contracted by disuse, etc.

The sphere of manual therapy lies in the ability of medical practitioners to influence centers of organic activity by mechanical stimulation through the vasomotor nerves, whereby less or more blood can be sent to parts, according to their need. Not only can this be accomplished, varying in utility with the physiological and other knowledge of the practitioner, but sensory, as well as nutritive effects, are thus wrought, and in so much more accurate, safe, and thorough a fashion that no one who has once had his attention thus aroused can remain content to omit using these excellent procedures. To be sure, it need not be that well-tried and proved remedies and measures shall be abandoned, but in manual therapy, when applied by the physician himself, there is a nice, exact, and prompt agency, far in advance of all other measures for the relief and cure of a wide variety of derangements, not only of the coarser mechanisms, but of the vital organs.

It remains, then, for medical men to investigate these statements, not to deny them. Drugs are admitted to fail frequently; the recognized forms of balneotherapy and climatotherapy fail: hygiene in its broadest sense, on which so many rely, can often accomplish little; of special rays, etc., much is hoped; but the reasonableness of manual therapy must commend itself increasingly to those physicians who will look carefully into the matter for themselves. J. Madison Taylor (New York Medical Journal and Philadelphia Medical Journal, December 19, 1903).

MILK: A CLINICAL AND BACTERIOLOGICAL STUDY.

The author conducted an investigation during the years 1901 and 1902 for the purpose of gathering facts relating to the following points: To make a comparison of the results of infant-feeding in tenements in winter and summer; to determine how far such results were affected by the character of the milk used, especially its original bacterial content, its preparation, and whether it was fed after heating or raw; to see to what extent results were modified by other factors, such as the care the infants received and the surroundings in which they lived. The paper is of considerable value, but its statistical character and its length render its condensation impossible. The authors summarize their conclusions under fourteen heads. We reproduce eleven of their conclusions in very greatly abbreviated form. During cool weather neither the mortality nor the health of the infants observed in the investigation was appreciably affected by the kind of milk or by the number of bacteria which it contained. During hot weather when the resistance of the children was lowered, the kind of milk taken influenced both the amount of illness and the mortality. The effect of bacterial contamination was very marked when the milk was taken without previous heating. The number of bacteria which may accumulate before milk becomes noticeably harmful to the average infant in summer differs with the nature of the bacteria present, the age of the milk, and the temperature at which it has been kept. Of the usual varieties, over 1,000,000 bacteria per cubic centimeter are certainly deleterious to the average infant. No special varieties of bacteria were found in unheated milk which seemed to have any special importance in relation to the summer diarrhœas of children. The number of varieties was very great, and the kinds of bacteria differed according to the locality from which the milk came. After the first twelve months of life, infants are less and less affected by the bacteria in milk derived from healthy cattle. Since a large part of the tenement population must purchase its milk from small dealers, at a low price, everything possible should be done by health boards to improve the character of the general milk-supply of cities by enforcing proper legal restrictions regarding its transportation, delivery, and sale. Of the methods of feeding now in vogue, that by milk from central distributing stations unquestionably possesses the most advantages. The use, for infants, of milk delivered in sealed bottles, should be encouraged whenever this is possible. Since what is needed most is intelligent care, all possible means should be employed to educate mothers and those caring for infants in proper methods of doing this. Bad surroundings, though contributing to bad results in feeding, are not the chief factor. The observations indicate that close percentage modification of milk, although desirable in difficult cases, is not necessary to obtain excellent results with the great majority of infants. W. H. Park and L. E. Holt (Medical News, December 5, 1903).

MUSCLE-TONUS AND TENDON PHENOMENA.

Disease of the posterior columns causes hypotonia and decrease of reflexes. When these conditions are present, the tendon phenomena are absent or diminished unless further disease of the descending tracts counterbalances this influence (return of knee-jerks in

cases of tabes after hemiplegic attacks). Disease of the pyramidal tracts causes hypertonia and increase of reflexes. The tendon-jerks under such conditions are increased unless additional disease of the ascending tracts, anterior horns, or peripheral neurons neutralizes this influence. Histological hypertonia and hypotonia modify the above-stated relations to a slight degree when the disease has not advanced to its full clinical representation. The writers find in their lists a large group of more or less normotonic registrations with approximately normal behavior of the tendon phenomena, and a smaller group with more or less marked hypotonic registrations. In this group the tendon phenomena were most diminished. This diminution is evidenced by the facts that the tendon-jerks are not easily elicited and that the muscular contraction is sluggish and vermicular and is easily exhausted. The above-mentioned behavior of the tendon phenomena is not influenced by a well-executed reinforcement. J. Fraenkel and J. Collins (Medical Record, December 12, 1903).

NOSTALGIA IN THE TROPICS.

Americans, owing to their strenuous mode of living and the depressing conditions of the tropical climate, are especially liable to nostalgia and melancholia. Persons suffering from nostalgia should be watched, and when it is complicated by melancholia they should be advised to return home at once. Sanatoriums at high altitudes, if not already provided, should be exploited at once for the recruiting of the health of soldiers and civilians. Only the government can do this. An especial effort should be made to educate all persons residing there as to the best methods of living for the preservation of health. E. S. Corson (American Medicine, November 7, 1903).

OPERATIONS PER VAGINAM.

The anterior vaginal route is most useful to reach and operate upon the round ligaments in cases of retroversion of the uterus or procidentia; also for removal of small fibroids, either subperitoneal or pediculated, or for conservative work on the ovaries and tubes, or for removal of these organs. The posterior incision is most useful for drainage in cases of pyosalpinx, salpingitis, pelvic abscess, some cases of tubal pregnancy with hæmatocele and puerperal sepsis, either with or without involvement of the tubes, for oöphoro-salpingectomy, when the ovary is held backward and downward by old adhesions, and even in some cases of acute general septic peritonitis. Henry Moffat (Medical Record, December 5, 1903).

PALATE, THE ARCH OF THE.

It is possible by deforming processes which artificially alter the shape of the skull to produce a change in form and shape of the hard palate. Under these above-mentioned conditions the septum seems to conform itself to the altered development of the rest of the face, rather contrary to our previous ideas regarding the habits of this structure. If from arrested or retarded development of the superior maxilla, the palate fails to descend to its proper level, a bent septum is as liable to be produced as when the palate is arched too greatly by an unnatural narrowing process. Hence a palate of perfectly normal height as compared to breadth may produce a bend in the septum. In considering the various causes which produce the abnormalities of the palate, more stress must be laid on

the lack of proper aëration of the maxillary sinuses retarding their development, and hence of the whole superior maxilla. The conservation and general care of the deciduous teeth help to produce a normal horizontal curve in the hard palate and lessen the tendency to narrowing. H. L. Swain (The Laryngoscope, October, 1903).

PUERPERAL SEPSIS, TREATMENT OF.

The first indication in sapræmia is to empty the uterus and vagina of all decomposing material and to disinfect all the genital tract as well as possible. This having been properly done, the remainder of the treatment is purely symptomatic. Septic bacterial infection is a much more serious matter and an earnest endeavor should be made to locate, if possible, the seat of infection. The following general measures have been recommended: 1. The serum-treatment. The author has lost all faith in the efficacy of such treatment. 2. Hysterectomy. To be of any efficacy, in the author's opinion, hysterectomy must be done at once. There are few men, however, who would have the temerity to assert that hysterectomy should be done in every case of suspected sepsis. The procedure is, therefore, only theoretically of any service. 3. Intravenous injections of germicidal agents, sublimate or formalin, by intravenous injection, though neither of these agents is probably of more efficacy than a 1-percent. saline solution. E. E. Montgomery (American Medicine, November 7, 1903).

PULMONARY TUBERCULOSIS, GENERAL PATHOLOGY AND TREATMENT OF.

It is only during recent years that much has been heard of the curability of pulmonary tuberculosis. After the first shock produced by the observations recorded by Rokitanski and by Virchow had lost some of its force, a number of observers drew attention to the fact that in the lungs of old people who had succumbed to diseases other than those of tuberculous origin there could often be found apical thickening of the pleura or, still more frequently, deeply pigmented irregular scars which were evidently the result of some considerable loss of tissue at an early period of life. A careful search for evidence of healed tubercular lesions showed the lecturer that in old people such evidence was to be found in at least one out of every three who came to the postmortem table. Even in those cases that succumbed to tubercular disease there was usually more or less marked evidence of a sturdy war waged by the tissues against the invading tubercular process. In most cases the tissues failed in their endeavor to check the advancing process simply because they were placed under disadvantageous conditions; not as the result of the action of the specific *materies morbi*, but as the result of interference with their nutrition.

The codliver-oil treatment, so long the most successful of all, had its foundation in the belief that this substance served some special nutrient or therapeutic purpose, as a result of which the tissues were strengthened and were thus enabled to resist the attacks of the disease-producing factor; while the present-day treatment of tuberculosis is founded on a similar belief that fresh air, good food, efficient excretion of waste-products, rest (opportunity for building up the tissues, food that will supply energy with least draught on the tissues), will enable these tissues to withstand the attacks of the tubercle bacillus in the first place; to kill it in the second, or, at any rate, to render it

harmless; and finally to assist in the removal, not only of the bacillus, but of the dead or degenerated tissue in which it had managed to effect a lodgment.

There seems to be no doubt that we may accept Koch's tubercle bacillus as the *causa causans* of tuberculosis. Here, however, the lecturer emphasizes a mistake into which it is very easy to fall: *i.e.*, that because a tubercle bacillus comes near, or even into contact with, the human or brute body, an attack of tuberculosis necessarily results. This bacillus must make its way not merely on to a free surface, but into the tissues of the body, before it can do any harm; nay, more, it seems that, in the human body, at any rate, the tissues must be damaged or weakened and a special mode of entrance into these damaged tissues must be prepared for the tubercle bacillus before it can work its dire effects.

In the lung this predisposing cause appears to be catarrh; that is, a congestion of the vessels of the mucous membrane, accompanied by some slight proliferation of the epithelial cells lining the air-vesicles, with an increased pouring out of fluid and an emigration of a larger number of white blood-cells. In the air-vesicles, especially when expansion and contraction are weak or imperfect,—*i.e.*, at the pulmonary apices in adults, near the root of the lung in children (and in monkeys), beneath areas of adhesion between the pulmonary and costal pleuræ, and at the base of the lung when there is adhesion of the pleuræ in this position, especially if the liver be adherent to the under surface of the diaphragm,—there is usually an accumulation of catarrhal products in which, if bacilli gain entrance and are allowed, undisturbed by any great amount of movement, to multiply, they produce their special products and cause those degenerative changes with which they are found to be associated causally. Once give them a footing under these conditions, and they are in a favorable position to produce tuberculosis.

It is evident from what has already been said that the tubercle bacillus may reach the lungs by way of the air-passages; that they make their way to those points at which there is least movement, and in which, as a rule, there is some degree of collapse, often associated with a condition of catarrh: *i.e.*, a condition in which the protecting layer of epithelium has been damaged, the lung-tissue then being in the same position as the surface on which the epithelium has been damaged. From this coign of vantage they may be distributed, still by the air-channels, to almost every part of the lung, setting up a condition of tubercular catarrhal pneumonia characteristic of the later stages of the so-called acute phthisis. In many cases this acute phthisis is nothing but an acute secondary pneumonic tuberculosis following a rapid distribution of tubercle bacilli imbedded in the caseous material derived from a chronic primary focus. It should be noted that in these cases cascation of the epithelial tissues usually takes place at a comparatively early stage of the process.

A second system of distributing or infection channels appears to play a prominent part in every case of tuberculosis, chronic or acute: the lymphatic system, including its glands. Much of the fluid that in the process of nutrition goes from the blood-vessels passes into the lymphatic spaces, and from this fluid the tissues take up their nutrient material, throwing back into it their waste or effete products. The fluid throws some of these waste-materials back into

the blood, but certain of the more solid particles pass to the lymphatic vessels and by them are carried to the lymphatic glands, where the coarser particles are filtered out, and where, too, certain changes appear to be effected even in the composition of the fluid lymph.

The tubercle bacillus or its products appears to exert some irritant effect directly upon the cells lining the lymph-spaces, as a result of which, just as in the air-vesicles, we have a proliferation of the cells and a formation of new tissue sometimes resulting in caseation, or the formation of a soft, pultaceous mass which is supposed to resemble cheese; at others—and this is a point to be specially borne in mind—in the formation of fibrous tissue.

The most marked feature in chronic tuberculosis is the formation of fibrous tissue in the pleura immediately above it; and it is an easy matter in most cases to determine roughly the comparative duration of the disease at any part of the lung by noting the thickness of the pleura and of the interlobular septa; so that in a chronic phthisis in which, as the result of an acute consolidation, the patient succumbs rapidly, there is usually well-marked thickening at the apex, this gradually shading off to the lower part of the upper lobe and being represented merely by a thin film of fibrin over the lower lobe.

Where this fibrous tissue is formed, it affords evidence of a good reaction on the part of the tissues and therefore of their powers of resistance; it is by the formation of this fibrous tissue around the areas of caseation that they are cut off and the lesion localized. Where this localization is incomplete, as it often is, the bacilli pass along by them to the lymphatic glands, here giving rise to proliferation, caseous degeneration, or fibrous tissue formation, just as is the case along the lines of the lymphatics. Having once reached the glands at the root of the lung, the process may, for a time, be localized; but unless the conditions are favorable and what we may call the reaction of the tissues is good, the tubercular virus may be carried from point to point, successive glands in the neighborhood localizing the disease for a time, but ultimately allowing of the passage of the virus to other organs.

The third method of transportation of the tubercle bacillus from one point of the body to others is by way of the blood-vessels. For some time it was supposed that the acute miliary tuberculosis that so frequently supervenes on the more chronic processes was something essentially different from the larger primary lesions; but the identity of the two sets of lesions had been accepted even before Koch had pointed out that the exciting cause of the two processes was the same. It was difficult to determine, however, how the tubercle bacillus made its way from the primary lesion to every organ and tissue of the body. Weigert was able to point out that in a case where there was tuberculosis of the wall of the thoracic duct, the bacilli were carried from this lesion to the veins, from which they passed through the heart and thence were distributed to the capillaries of every part of the body. In these capillaries, blocking them and becoming attached to the endothelial lining, they again set up a proliferation in and around the capillary vessel, as a result of which the minute tubercles met with in this condition soon became manifest to the naked eye.

It must be remembered that these different methods of spread of the virus seldom occur alone. Whenever the air-

passages are affected the tubercle bacilli make their way into the surrounding lymph-spaces, there giving rise to the proliferative and then to the degenerative changes already described. Similarly, in acute miliary tuberculosis there is, in each nodule, evidence of the invasion of the lymphatics by the tubercle bacillus, and it is because we have this affection of the lymphatics that the various lesions ultimately become localized. It is only through them that we can have a stimulation and proliferation of the connective-tissue cells, new formation of fibrous tissue, and localization and absorption of the diseased tissues.

The patient who has once suffered from tuberculosis must remember that, although he may be partially protected, he does not enjoy any definite immunity against future attacks of the disease; and it is absurd for anyone to decry a system of treatment because it does not confer a lifelong immunity to the disease against which it is directed.

Patients even after discharge from sanatoria where the treatment has been successful, should continue the treatment, perhaps in a modified form, throughout their whole life, as it is impossible to state when a patient can come back to the old conditions of life with impunity; in fact, one may lay it down as a general proposition that it is only as we insist on the improvement of the conditions of life wherever such improvement is possible, that we shall be able to diminish the morbidity, as apart from the mortality, of tuberculosis. It is here that the medical officers of health and sanitary officers can play so large a part; and that an institution of this kind can do so much to spread a knowledge of the importance of light and air in the home and in the workshop, of sufficient food even though plain, of the danger of prolonged periods of overwork, except in the case of the very strongest; and of the importance of periods of rest during which the organs and tissues of the body may not only be built up, but may get rid of the waste-material that accumulates so rapidly during periods of active exertion.

There can be no doubt that the sanatorium treatment has been successful, not because of any special climatic conditions associated with each institution, but because, whatever the climate, the patient has been encouraged to live practically in the open, diet, exercise, and rest, of course, being carefully attended to. All acknowledge that a sanatorium treatment is of inestimable value in tiding over the difficult and dangerous early period of the disease; but it will be still more valuable just in so far as it teaches the patient to carry out in his own home the principles and methods adopted in the sanatorium. G. Sims Woodhead (Third Lecture in the International Series on the Study and Prevention of Tuberculosis, given under the Auspices of the Henry Phipps Institute, Philadelphia, December 29, 1903).

PULMONARY TUBERCULOSIS, TREATMENT OF, BY FORMALDEHYDE.

There are three different ways of administering formaldehyde in pulmonary tuberculosis. The first is by inhalation, the second by intravenous injection, the third by electricity. In discussing the first method, the writer says that the idea that volatile substances inhaled are beneficial in consumption is as old as the Greeks. There are two ways of using inhalation: first, by the oro-nasal inhaler; second, by the vaporizer. The inhaler is pyramidal, flexible, and light,

made of perforated zinc, and fits the chin accurately. He recommends a mixture of 40 per cent. of formalin, 1 part of chloroform, 2 parts of rectified spirit. A few drops of ammonia are added to the mixture to neutralize the pungency of the vapor. The advantages of this method are, first, its simplicity, and the fact that the patient is able to use it in the open air or indoors at will; second, that it prevents the inhalation of dust; and, third, that the patient after leaving the sanatorium is able to continue this method of medication himself. The vaporizer consists of a spirit-lamp with open boiler, into the mouth of which is let a tray which carries paraform powder with a little menthol for neutralization. The moist products from the decomposition of the spirit causes the evolution of the gas. The steam renders the action of the formaldehyde more effective and penetrating. This vapor-bath is taken for an hour or two daily with the doors and windows partly closed. The advantages of this instrument are that the patient's room and its contents are rendered aseptic by constant disinfection, so that without practical doubt all expectorated tubercle bacilli are killed daily. Two conditions are necessary for inhalation to be efficacious. First, the inhaler must cover the nose; second, it must be continuously worn. To the statements made by many that these methods of treatment are futile, it is interesting to note that the state of the lungs of those engaged in dusty occupations has always shown that the inhaled dust penetrates far into the pulmonary tissue. Furthermore, if a volatile substance like chloroform can, when inhaled, enter into the circulation, it does not seem reasonable to doubt that formaldehyde, when inhaled, especially with chloroform and spirit, does not enter the alveoli. The writer has kept full records of more than one hundred patients, and his conclusions are that these methods are a distinctly advantageous accessory to the open-air treatment. The method of intravenous injection is as yet *sub judice*. The writer commences the treatment with 50 cubic centimeters of a strength of 1 in 2000, increasing to 1 in 1000. The patient often complains of numbness in the hands. The temperature sometimes rises slightly and sick headache and shivering fits are occasional. Dr. Rankin has injected 200 cubic centimeters of 1 in 500. There was no result from this save a numbness at the tip of the tongue. The objection to this form of treatment is that, owing to the non-vascular character of the tubercular tissue, the formaldehyde cannot reach the affected part. It is, however, not intended to kill the tubercles *in situ*, the treatment being directed more to the lessening of the general septic infection than to a direct attack upon the tuberculous bacilli. As to the electrical method, it has not as yet proven to be of service. De Chowry Muthu (British Medical Journal, October 24, 1903).

QUININE AND STRYCHNINE.

Dapena (Revista de Medicina y Cirurgia de la Habana, October 25, 1903) has carried out, upon dogs, a series of experiments similar to those of Robasch, who demonstrated the existence of a marked antagonism between quinine and strychnine through hypodermic injections of those drugs into frogs. The author draws the following conclusions from his studies: 1. Quinine acts upon warm-blooded animals in the same manner as upon cold-blooded ones, exercising an influence antagonistic to strychnine. 2. The higher the animal in the

zoölogical scale, and the more highly developed its nervous system, the larger the dose necessary for this antagonistic influence. 3. Animals treated with strychnine endure a dose of quinine double or triple—according to the animal's zoölogical rank—that endured without strychnine. 4. Animals treated with quinine endure a dose of strychnine double or triple—according to the perfection of the nervous system—the amount endured without quinine. 5. In all cases of strychnine poisoning, heroic doses of quinine should be employed, as these undoubtedly exert a favorable influence. (New York Medical Journal and Philadelphia Medical Journal, December 19, 1903).

ROENTGEN RAYS IN THERAPEUTICS.

The author bases upon personal experience the following classification of his results:—

First, a class of cases of malignant disease treated by the application of the rays, with total failure resulting, in so far as cure is concerned. He is unable to state the cause of the failures.

Second, a class of cases where there has been produced a decided improvement in all the symptoms. In the majority of the cases belonging to this class there has been an alleviation of pain soon after the first treatment with the rays. Among the other improvements noted are disappearance of induration and œdema. In a certain number of cases where adjoining or nearby glands were enlarged from metastatic involvement, he noticed a decrease in their size (in some cases almost to normal) usually taking place after the second or third treatment. Ulcerating malignant surfaces were in many instances observed to take on a healthy appearance, and in certain instances complete healing was induced after from three to five exposures. To this class belong the majority of cases coming to the x-ray therapeutists for treatment. As we might assume from the above heading, these improvements were seldom, if ever, permanent; and after treatments had been discontinued, the malignant lesions returned to their former severe (and even in some cases to worse) conditions.

Third, a class of cases in whom permanent cure has undoubtedly taken place. To this class, unfortunately for both the patients and x-ray therapeutists, belong the smaller number of cases. The writer states, when he speaks of permanent cure, it must be remembered, so as to avoid misunderstanding, that the cases coming under this category are sarcomata, external carcinomata, and epitheliomata. Jacob's, or rodent, ulcer is the form of epithelioma which has perhaps given the least trouble, and required the least number of x-ray applications to effect a permanent cure. Of these he has successfully cured sixteen cases without a single recurrence thus far. As before stated, not sufficient time has as yet elapsed confidently to state that no recurrence will take place, though some eight or nine cases have stood the test for four years without any signs of return. Among other cures are cases of malignant tumors of the skin (proved by microscopical examinations), of the mammary glands, and of those located in easily accessible cavities. The writer also adds that he has had less result in curing sarcomata than carcinomata, though of the former type of malignant disease he has three cases which from all appearances seem to be absolutely cured. Why sarcomatous tissue is more difficult to cure by x-ray applications

than carcinomatous is a matter which he has been investigating for some time, though he has not been able thus far to offer a satisfactory explanation. Cancer of the mammary gland, in a small proportion of cases, when treated by the x-ray has given very good results.

It is not amiss to state here the writer's opinion on the point whether an accessible malignant field should be removed by operation, if not too far advanced, or be treated by x-ray. In his opinion, so long as a case is operable, he would urgently recommend this procedure; and when recurrence is noted the x-rays should be repeatedly applied in the hope of effecting a cure; the rays should likewise be applied to those malignant states which are considered to be inoperable.

Lupus vulgaris is, in 95 per cent. of cases, amenable to x-ray treatment, according to the author's experience. It has lately been recommended by certain authorities to start the curative process with the ray applications in those cases where the ulceration and induration are extensive, and then to follow with the Finsen-light treatment. The writer cannot see the advantage of this form of treatment. In his experience, the best results are obtained by careful x-ray treatments. M. K. Kassabian (New York Medical Journal and Philadelphia Medical Journal, December 12, 1903).

SAHLI TEST-MEAL, THE.

The objections to the test-meal proposed by Sahli are: When made up according to Sahli's description, the soup is not homogeneous. The application of the test-meal to general practice is entirely impracticable. The time consumed in determining results is incommensurable with the advantages derived from its use. The lack of agreement in every case between the clinical diagnosis and the diagnosis according to the Sahli method. The possible diagnosis, by means of the test-meal, of functional disturbance. The diagnosis between the degree of acidity and amount of secretion. E. A. Aronson (Medical Record, December 5, 1903).

SCARLET FEVER, THE MICRO-ORGANISM OF.

The announcement made on December 15th at a meeting of the Boston Society of Medical Sciences, by Dr. Frank Burr Mallory, Assistant Professor of Pathology at Harvard, seems likely to bring our knowledge of scarlet fever up to the level of that already attained in regard to many infectious diseases. Until the etiology of any disease is clearly established, our knowledge of the way to deal with it must, in the nature of things, be largely empirical. It is only in the removal or overcoming of the cause that medicine really becomes a scientific art; the mere counteracting of effects, though, of course, better than nothing at all, is far from ideal medicine.

Dr. Mallory considers that he has at length discovered the *causa causans* of scarlet fever, not in a bacterium, where most investigators have up to now been looking for it, but in a protozoön, as in the case of malaria. This protozoön he has found in the epithelial cells of the skin and tongue and in the superficial lymph-vessels and spaces of the corium. Of course, as Dr. Mallory himself points out, the mere discovery of the presence of these bodies does not of itself prove their causal relation with the disease. Koch's laws, in this as in other cases, must be satisfied before such a claim can be made. But the per-

sistence with which the search for a bacterial cause—so earnestly carried out by numerous investigators, basing their search on analogy with what is absolutely known of other infectious diseases—has hitherto proved elusive suggests that a change of direction in the search may ultimately place, not only scarlet fever, but measles, small-pox, etc., in the same rank, as regards our knowledge of them, with diphtheria, typhoid fever, tuberculosis, and other infectious or contagious diseases whose etiology is now well established. Editorial (New York Medical Journal and Philadelphia Medical Journal, December 19, 1903).

SLEEPING SICKNESS.

Sleeping sickness is caused by the entrance into the blood and cerebro-spinal fluid of a species of trypanosome. This species is probably that discovered by Forde and described by Dutton, from the West Coast of Africa, and called by him *Trypanosoma gambiense*. The so-called cases of trypanosoma fever described from the West Coast may be, and probably are, cases of sleeping sickness in the earliest stages. Monkeys are susceptible to sleeping sickness and show the same symptoms and run the same course, whether the trypanosomes injected are derived from cases of so-called trypanosoma fever or from the cerebro-spinal fluid of cases of sleeping sickness. Dogs and rats are partly susceptible, but guinea-pigs, donkeys, oxen, goats, and sheep, up to the present, have shown themselves absolutely refractory. The trypanosomes are transmitted from the sick to the healthy by a species of tsetse fly, *Glossina palpalis*, and by it alone. The distribution of sleeping sickness and *Glossina palpalis* correspond. Sleeping sickness is, in short, a "human tsetse fly disease." Editorial (British Medical Journal, November 21, 1903).

SMALL-POX IN PHILADELPHIA.

An epidemic of small-pox does not usually break upon a great city in its full force at the outset. It smolders, first in one quarter and then in another; in all of them it may apparently be quelled, but it bursts forth anew, and the quarters in which it is manifest get to be more and more numerous and its recrudescences more and more frequent. The disease has given almost weekly evidence of its presence in Philadelphia for many months past, and within the last few weeks it has acquired a degree of prevalence that may well give rise to concern. The occurrence of this increased prevalence at the onset of winter is only what was to have been expected in view of its persistence during the summer, for whenever it lurks with us through the summer months it is tolerably sure to augment with the approach of cold weather. It is probably for more than one reason that it rages pre-eminently in winter. In the first place, if the contagious principle gains access to a house, it is more shut in in winter, and consequently acts with greater concentration on the inmates; in the second place, since the heat and moisture of summer are well known to be inimical to the preservation of energy in vaccine, we may well suppose that the coming of winter tends equally to sustain the vitality of the small-pox virus, a virus analogous to that of vaccine, if, indeed, the two are not really modified forms of one and the same poison. All our great epidemics of small-pox have occurred in winter, or at least shown their greatest virulence in that season, and we do not think ourselves open to the reproach of pessimism if we express

anxiety as to the probable ravages of the disease in Philadelphia during the winter that has now opened.

In addition to scrupulous isolation of the victims of the disease, there is, of course, but one thing to be done to check its progress, namely: the enforcement of vaccination to the full extent authorized by law. That the sanitary officials of the city are alive to this fact we do not doubt, and no more do we doubt that they will receive the support of the great mass of the family physicians. And doubtless the citizens at large have long before this recognized that last year's deplorable frequency of tetanus following vaccination in Camden was not really due to vaccination *per se*, but to a superadded infection. Those of them who do not yet realize this manifest truth can, we are sure, readily be made to do so by intelligent work on the part of the medical profession. We would urge our Philadelphia readers not to be backward in endeavors to induce their patients to submit to this certain preventive of a disease that, though at times it manifests a deceptive mildness, yet in the general run shows a malignancy seldom excelled by the diseases to which mankind is exposed. Editorial (New York Medical Journal and Philadelphia Medical Journal, December 12, 1903).

SPLEEN, PROTEOLYTIC ENZYMES OF THE.

The most fruitful fields for physiological research to-day seem to be the domain of the various animal enzymes. S. G. Hedin (Journal of Physiology, November 2, 1903) finds in the spleen of the ox two proteolytic enzymes, the one (α-protease) acting only or principally in an alkaline medium, and the other (β-protease) acting only or mainly in an acid medium. The β-protease can be obtained in solution by digesting the spleen with very weak acetic acid, and the α-protease (together with β-protease) by extracting the residue with sodium chloride solution, dialyzing, and precipitating with weak acetic acid. The precipitate contains both enzymes. Both enzymes have been obtained in two forms: combined with nuclein substances, in which case they are not soluble in weak acetic acid; and not combined with nucleins, and therefore soluble in weak acetic acid. The form not soluble in weak acetic acid can be obtained from the soluble form by adding a nuclein substance and acetic acid in absence of salt. Ox-serum contains antibodies of the α-protease, but not of the β-protease. The spleen enzymes are in all probability contained in the leucocytes of the spleen, and there they may perform their functions. There they may affect the metabolism of the nitrogen inside the cells, and they may also have something to do with the digesting processes, which, according to the view of Metchnikoff, take place inside these cells during the phagocytosis. As to the significance of the β-protease, it should be remembered that the acid reaction required for its activity according to investigations carried out by Ehrlich and particularly by Metchnikoff and his pupils occurs at some places inside the leucocytes. Thus the reaction of the nuclei is considered to be acid, and the digestion of bacteria and other substances taken up by the leucocytes in most cases takes place inside the so-called digesting vacuoles, where the reaction, as a rule, is acid. Whether the spleen enzymes may be active outside the leucocytes as well as inside is a question which cannot be settled at present. It does not seem to be impossible that the enzymes could leave the cells either

by an act of secretion or perhaps by digesting some of the cells. Similar or perhaps identical enzymes seem to be present in several organs, although not in such amounts in the spleen, and there may be proteolytic enzymes in the blood, although their activity may be checked by antibodies. Therefore, the author does not think that the spleen enzymes should at once be ranked with the so-called intracellular enzymes. (Medical News, December 26, 1903.)

SUPRARENAL EXTRACT IN ATONY OF THE BLADDER.

In those forms of retention due to no extraneous cause, but dependent solely on a diminution or abolition of the normal contractility of the bladder muscles, contraction of the muscular fibers is indicated. Moresco (Gazzetta degli Ospedali e delle Cliniche, August 16, 1903), therefore, began by injecting into the bladders of two patients with atony, due to the weakness of the detrusor muscle, about 150 cubic centimeters of a 1 to 50,000 solution of suprarenal extract, allowing the solution to remain in the bladder for an hour or longer. As this first injection was well borne, the strength was increased to 1 to 25,000, and after five or six injections there were some attempts at spontaneous micturition. In about two weeks the patients could empty their bladders almost without any help from the catheter. While these cases are few and incomplete, the results appear to the author to be encouraging. (New York Medical Journal and Philadelphia Medical Journal, December 12, 1903.)

SUPRARENAL EXTRACT IN GASTRO-INTESTINAL DISORDERS.

Suprarenal extract is useful in intestinal atony, when given by mouth as by enemata. The action is largely local, and hence the remedy, where given by mouth, influences the stomach and small intestines, while the enemata act largely upon the colon. The enemata should consist of from 30 to 100 drops, according to the degree of constipation present, the average dose being 50 or 60 drops. Enemata of suprarenal extract are not painful or followed by any unpleasant symptoms. A prolonged use of these enemata diminishes fermentation in the intestine and increases the body-weight by improving the functions of the intestinal tract. The injection of suprarenal extract is of great value for diagnostic purposes in intestinal occlusion, as it enables the surgeon to distinguish between the spastic and the paralytic types of obstruction. G. Mancardi (New York Medical Journal and Philadelphia Medical Journal; from Riforma Medica, October 7, 1903).

SURGICAL ANÆSTHESIA, GENERAL.

No one form of anæsthetic should be used as a routine. The general management of the patient and of the anæsthetic are matters of importance. A skillful anæsthetizer should always be employed. Of the general anæsthetics, ether is the safest and most satisfactory, in most cases. E. J. Mellish (Journal of the American Medical Association, December 12, 1903).

SYPHILIS AND DIVORCE.

The existence of venereal disease in either party to a contract to marry is sufficient ground for the other party to refuse to fulfill the engagement, and, therefore, constitutes a valid defense in a breach of promise suit. The existence of venereal disease in either party at the time of marriage may render the marriage voidable. When a woman has been

infected with syphilis by her husband the law may grant her a divorce on the statutory ground of cruelty and infidelity. In the State of New York, where "infidelity" is recognized as the sole ground for divorce, the charge of cruelty could not be pleaded. As the law now stands, there is no civil or penal responsibility imposed upon the husband for the transmission of syphilis in the marriage relation. P. A. Morrow (Medical News, December 12, 1903).

SYPHILIS, CONGENITAL, THE RELATION OF THE ADRENALS TO.

N. Guleke (Virchow's Archiv, Bd. clxxiii, Ht. 3) arrives at the following conclusions from a careful study of the number of cases of congenital syphilis: Pathological changes in the adrenals in congenital syphilis are not by any means rare, even though they are not always recognizable at macroscopical examination. They consist in typical interstitial, productive inflammation and genuine gummatous formation. But, in addition to these changes, peculiar necroses are found, which are of varying size and of a progressive character. Guleke considers the necroses to be the effect of the action of a toxin, in this case being the specific virus of syphilis, but does not think them a specific syphilitic process. (American Medicine, November 21, 1903.)

SYPHILITIC ARTHRITIS.

In hereditary syphilis the joints are not exempt from attack, the varieties being grouped as follows: Simple synovial effusion; joint disease associated with syphilitic epiphysitis: primary gummatous affection of the synovial membrane; osteitis associated with effusion only; osteitis associated with gumma of the synovia (pseudo-white swelling); deforming arthritis. Simple synovitis, rheumatism, and gonorrhœal arthritis are the affections for which secondary syphilitic joint affections are likely to be mistaken. Tertiary lesions may be confused with osteoarthritis or tubercle. The knee suffers from syphilitic arthritis oftener than all the other joints together. Attention is called to the fact that absolute rest is in many cases not wholly necessary, but may do actual harm. E. P. Paton (British Medical Journal, November 28, 1903).

THORACIC VAGUS BRANCHES, PHYSIOLOGY OF.

The cardiac branches of the vagus may be severed without opening the thoracic cavity. Peripheral stimulation of the vagus causes a narrowing of the bronchi. This narrowing of the bronchial lumen appears to be independent of circulatory changes due to cardiac anomalies, but is due to muscular spasm. It may also be caused by a swelling of the mucous membrane, however. Both muscular spasm and swollen membrane interfere with gaseous metabolism. Swelling of the mucosa does not offer a greater resistance to expiration than inspiration. The prolonged expiration in constricted bronchi is a form of nervous regulatory mechanism. M. B. Zeele (American Medicine; from Russki Vratch, August 9, 1903).

TRICHINOSIS.

The diagnosis of trichinosis is based on the following features: Muscular pain, usually severe and widespread, due to a general myositis; continued or remittent fever, resembling that of typhoid; a persistent leucocytosis, averaging from 10,000 to 20,000; an increase in the eosinophiles, varying from 10 to 50 per cent.; the presence of trichinæ in the muscle-tissue; and to these should be added œdema about the

face and ankles, on which as a diagnostic feature much stress is laid by Osler and others, but which was never observed in the case under consideration; least valuable of all, a history of having eaten pork. With regard to the diagnostic value of eosinophilia in trichinosis two questions need answering: Is it constantly present? The author answers no, but that it is so in the great majority of cases. Does eosinophilia occur only in trichinosis? No; but the rather long list of diseases in which eosinophilia does occur differ so in their clinical picture from the disease under consideration that no one should be misled on this account. The author asserts his belief that trichinosis is far more prevalent than is generally imagined, and that the apparent rarity of the disease is due to it being mistaken for other conditions. W. F. Cheney (American Medicine, December 19, 1903).

TUBERCLE BACILLUS, ON THE NATURAL HABITAT OF THE.

While tuberculosis is now present in many animals besides the cow, it is likewise true that when the germs are drawn directly from the cow to any of these animals they sicken and die with much greater certainty and celerity than when drawn from any other source. Hence the conclusion forces itself upon us, even from Koch's own experiments, that the cow furnishes the type of soil and tissue best adapted to the production of virile tubercle bacilli; also that, the more immediate the transference of tuberculosis from the cow to man, the more deadly it becomes and the more readily it may be transferred back to the cow again; while cultures many generations removed from the cow lose much in virulency, are comparatively innocent in their effects, and are with great difficulty carried back to the source from which they took their origin. Hence, it is highly improbable that the rule is reciprocal in its action, and that if not transferable to the cow from man it may not be transmitted from cow to man.

There is every reason to believe, from analogy and from natural history, that the tubercle bacillus outside the cow is a dwarfed and feeble plant, and though in many respects resembling the parent-stock, lacks much of that virulency which rapidly destroys the lives of those unwary creatures which draw their sustenance in part at least from the infected cow. This belief is further strengthened by the fact that tuberculosis has but slight existence in those regions where the cow is not used for dairy purposes.

Further investigations are necessary, but in the end it seems more than probable that the original and most dangerous source of infection in tuberculosis will be found to rest in the bovine species. J. W. Kime (New York Medical Journal and Philadelphia Medical Journal, December 19, 1903).

TUBERCULOSIS AND THE HOME.

The germ of tuberculosis is ubiquitous; few persons reach maturity without infection; none reach old age without a focus somewhere. That the ravages of the disease are not greater than they are is due to the great resistance of the human body to the disease and not to any lack of exposure to its germs. Ninety-eight per cent. of all cases of tuberculosis must be treated in the home. It is, therefore, of transcendent importance that the profession and the public should have clear ideas as to the home-treatment of the disease. The points of chief importance are: Early diagnosis. Too often is precious time

wasted and the golden opportunity allowed to pass by the failure of the physician properly to examine the chest. Early cases should be managed in a more masterful way. It is the author's firm opinion that more patients are injured than benefited by drugs. It is not that the drugs themselves do so much harm, but that weeks are lost in trying to check a cough or control a fever in a patient who is allowed to continue his work and be up and about. The rational treatment of tuberculosis, and the only one that will give good results, resolves itself into seeing that the patient is kept under control from the first stages of the disease and that he receive plenty of good food and fresh air and absolute rest during the febrile periods. William Osler (Medical News, December 12, 1903).

TUBERCULOSIS OF THE LARYNX.

Hypertrophic, or hyperplastic, tuberculosis of the larynx must be considered a distinct and unusual form of the disease. As a rule, there is no ulceration, but there *may* be some late in the course of the disease. Ulceration may be present at the same time as the hyperplasia of the tissues in some part of the larynx, but the characteristic circumscribed hypertrophies and tumor formations do not break down. It is practically always secondary to the pulmonary involvement, but there appears to be some evidence in support of the statement that particularly this form of tuberculosis may at times be primary. Clement F. Theisen (American Journal of the Medical Sciences, November, 1903).

TUBERCULOSIS, THE POINT OF ELECTION IN.

The site of the initial lesion of tuberculosis does not indicate that the bacillus has entered the body at that point. The common error of pathologists is that they have tried to trace the source of the infection and point out the avenues of entrance by presuming that the site of the lesion indicated the channel by which bacilli gained a lodgment in the body. We must bear in mind that bacilli can penetrate our mucous membranes without lesion, and they do this wherever there is sufficient lymph-suction, as there would be from the alimentary lymph-radicles to the thoracic duct. Bacilli gaining the blood-vessels would circulate freely as simple foreign bodies unless destroyed or arrested. The lodgment, then, of bacilli and foreign matter by apparent selection in a special organ, and in the superior part of this organ, contrary to the laws governing ponderable bodies, must be due to mechanical causes influencing them along unusual lines. Applying this reasoning, we find that man has one point of election, and the writer believes the explanation for this constant deposit in the apex of the lungs lies in the fact that the *vis a fronte* by the great veins and lymph-vessels in the angles of the neck causes enough suction to create a counter lymph-current and an area of lymph-stasis in the apices of the lung. A bacillus falling within this zone of lymph-stasis would become arrested far quicker than elsewhere in lung-tissue. If a bacillus is screened out of the blood-vessels in the lower lobes it falls within the influence of the suction to the powerful chain of bronchial glands. Bacilli picked up in this manner are most often destroyed, though, if the intake of bacilli is constant, sooner or later the glands suffer and show the damage done by the arrest. The pulmonary and bronchial lymph-glands are essentially great scav-

engers that stand guarding our bodies from bacterial invasion. That they perform this function well by the frequent arrest of tubercle bacilli is proved by the great percentage of infection in these glands found in necropsies of subjects dying from other diseases. J. O. Cobb (New York Medical Journal and Philadelphia Medical Journal, December 26, 1903).

TUBERCULOUS DISEASE, CHILD-LIFE AND.

Among the agencies that have now fortunately been set to work to educate the people concerning the multitudinous aspects of the tuberculosis problem there are few, if any, we venture to say, that are better calculated to serve the purpose than the pamphlets published by the Committee on the Prevention of Tuberculosis of the Charity Organization Society of the City of New York. The seventh of the series, by Dr. Abraham Jacobi, is entitled "Tuberculosis and Children." Mindful that he is writing for untrained readers, Dr. Jacobi does not attempt to deal with his subject systematically, but gives the public useful and interesting information concerning tuberculous disease in children, ever and anon pointing out the bearing of a particular fact upon the spread of infantile tuberculosis. But he manages to cover the essentials.

Dr. Jacobi's vast experience enables him to throw some interesting light on the question of occasional recovery from tuberculous meningitis. He says that about forty years ago he diagnosticated that disease in a boy 3 years old. "He got well: that is, he did not die. For some years there were no particular complaints. But the child's temper was changed, he was bad, became more irritable, vehement, violent, and sometimes dangerous. He was a slow learner, except of the use of his muscle. He remained wayward, with sudden outbreaks of malice, irresponsible, and unreliable. When he reached his twentieth year he also reached the insane-asylum, where he still is to remain as long as he lives." The lesson is that, since there is no escape from this form of the disease when it is established, we must look about for preventives.

Dr. Jacobi writes most instructively of the "hardening process." There can be no routine process, he says, applicable to all children alike, but in most instances, after the tenderest infancy, methodical cold bathing followed by friction is no tax upon the child and certainly has a powerful tendency to heighten the vital powers of resistance. Concerning the overboiling of milk he says: "Some people pride themselves on the thoroughness with which they recommend or practice boiling. But, then, it is not called boiling, it is called sterilization, and a foreign word of five syllables is so ornamental, don't you know? Proudly an affectionate mother tells you she sterilizes the milk her baby is to take for thirty, forty, or sixty minutes. She would not do less for her baby, not she. But she should know, or learn, that what is saved of milk after forty minutes' boiling is no longer a healthy milk and not fit to keep her baby in health."

Dr. Jacobi recognizes the danger of the milk of tuberculous cows, and calls attention to the delicacy of the gastro-intestinal mucous membrane in children and the frequency of lesions of that structure, whereby an opportunity for direct infection is afforded. We cannot refrain from citing this amusing anecdote illustrative of the tendency of some people to make light of children's dis-

cases: "Some thirty years ago," says Dr. Jacobi, "a well-meaning man with a large family said to me: 'Doctor, you must now and then make a call; I do not mean to bother you much. When there are some such trifles as sick children, I shall not send, but take the doctor around the corner; but you must promise to come and see us when we older people are sick.' I said: 'I shall make a bargain with you: I permit you to send for me when the children are sick. When you are sick yourself just send for the doctor 'round the corner, or you may "cry for Castoria."'" Editorial (New York Medical Journal and Philadelphia Medical Journal, December 26, 1903).

TYPHOID, LARYNGEAL COMPLICATIONS IN.

The author, basing his conclusion upon 25 collated cases, reported in the last fifty-eight years, states that the subject of typhoid affections in the larynx calls for general recognition. Bacteriological and clinical evidence strongly supports the view adopted by the majority of observers, that the laryngeal involvement in most instances is a direct typhoid infection.

A high death-rate, as shown by statistics, when this complication exists, teaches the salutary lesson of always examining the larynx when the danger-signals of hoarseness, dyspnœa, or dysphagia set in. The favorable results which follow operative interference offer such a contrast to the high mortality without operation that there can be but unanimity of opinion as to its propriety. Tracheotomy is the most approved, because in most cases the only possible surgical procedure which can save life.

The following synopsis is presented of twenty-five cases in which complete reports or abstracts were accessible:—

Lesions in Larynx.

	Cases
Laryngeal perichondritis	5
Laryngeal ulceration	5
Laryngeal necrosis	3
Laryngeal abductor paralysis	2
Laryngeal œdema	3
Laryngeal diphtheria (presumably)	3
Ludwig's angina	2
Abscess in larynx	2
	25

Final Results.

With operation.

Tracheotomy	10
Intubation	2
Recovery (Tracheotomy, 6; Intubation, 1)	7
Died (Tracheotomy, 4; Intubation, 1)	5
Complete recovery without chronic laryngeal stenosis	4
Wore cannula permanently	3

Without operation.

Not operated on	13
Died	9
Recovered	4

Homer Dupuy (New York Medical Journal and Philadelphia Medical Journal, December 26, 1903).

URETERAL CATHETERIZATION, THE VALUE OF.

Before resorting to a cutting operation upon a kidney—especially before doing a nephrectomy—the presence of a second functionating kidney should be established. The best and safest method for ascertaining the presence of a kidney is by the aid of cystoscopy and ureteral catheterization. The function of the kidney is best determined, in order of importance: By the freezing-point of the urine; by phloridzin glycosuria; by the quantity of urine excreted; by the freezing of the blood.

The most reliable method of obtaining the separate urines is by the ureteral catheter. W. E. Lower (Medical News, December 19, 1903).

VOLVULUS OF THE STOMACH.

Volvulus of the stomach occurs in all ages and in both sexes. Digestive disorders may be considered as etiological factors. Volvulus of the stomach may be divided into *(a)* that due to organic changes produced by adhesions, ulcerations, tumors, and contractions, and *(b)* that in which no visible organic changes have taken place. The characteristic symptoms are: Sudden onset; distension, which commences in the left hypochondriac region, and which gradually increases in size; a tumor, which gives, on percussion, a tympanitic sound; vomiting or regurgitation immediately following ingestion of food or drink; no belching, no escape of flatus; inability to pass a sound into the stomach. When the condition is recognized, early operative interference is indicated, and recovery is almost certain. C. D. Spivak (American Medicine, October 31, 1903).

Books and Monographs Received.

The editor begs to acknowledge, with thanks, receipt of the following books and monographs:—

Transactions of the Clinical Society of London. Volume the Thirty-sixth. 1903.

A Nonsurgical Treatise on Diseases of the Prostate Gland and Adnexa. By George Whitfield Overall, A.B., M.D. Marsh & Grant Company, Chicago. 1903.

The Practical Care of the Baby. By Theron Wendell Kilmer, M.D., New York. With 68 Illustrations. Philadelphia: F. A. Davis Company. 1903.

The Right to Life of the Unborn Child. A Controversy between Prof. Hector Treub, M.D.; Rev. R. Van Oppenraay, D.D., S.J.; and Prof. Th. M. Vlaming, M.D. With an Appendix on a New Method of Operating, ejecting the Fetus Alive. New York: Joseph F. Wagner. 1903.

Annual Report of the Health Department of the City of Louisville, Ky., for the Fiscal Year ending August 31, 1903.——The Fermentation Theory of Infection and Immunity. By J. W. McLaughlin, M.D., Galveston, Texas.——First Dressing on the Battlefield. By Col. Nicholas Senn, Chicago, Ill. 1903.——The Surgical Treatment of Traumatic Hæmorrhage of the Spleen. By N. Senn, Chicago, Ill. 1903.——A Case of Diabetic Intra-ocular Lipæmia, in which the Blood was Examined during Life. By W. Hale White, London, Eng. 1903.——Court Testimony of Medical Experts in Mental Diseases. By B. D. Evans, Morris Plains, N. J. 1903.——The Results in Bloodless Reposition of Congenital Dislocation of the Hips, with a Report of Cases. By G. G. Davis, Philadelphia. 1903.——The Forcible Reposition of Congenital Luxation of the Hip. By G. G. Davis, Philadelphia. 1903.——The Treatment of Congenital Luxation of the Hips. By G. G. Davis, Philadelphia. 1903.——Repair of Lacerations of the Cervix Uteri; an Investigation as to the Proper Time for the Operation. By D. H. Craig, Boston, Mass. 1903.——The Clinical Association and Significance of the Cardiopulmonary Murmur. By J. J. Putnam, Boston, Mass. 1903.——Some Recent Advances in Medical Therapeutics. By T. E. Satterthwaite, New York. 1903.——Differences in the Management of Appendicitis and of Salpingitis. By G. E. Shoemaker, Philadelphia. 1903.——A Clinical Study of Organic Iron. By J. V. Shoemaker, Philadelphia. 1903.——Hæmophilia: An Object-lesson. By Charles Hicks, Dublin, Ga. 1903.——Report of a Typical Case of Exophthalmic Goiter. By W. H. Lyne, Richmond, Va. 1903.——The Illimitable Power of Mind. By E. L. Larkin, Mt. Lowe Observatory, Echo Mountain, Cal.——Die Progressive Myoklonus-epilepsie (Unverricht's Myoklonie). Von Dr. Herman Lundborg, Upsala. 1903.——Le Vin au point de vue médical. Par E. Mauriac. 1903.——Report of the Secretary of Agriculture. 1903.——Report of The Editor for 1903. United States Department of Agriculture. By George William Hill.——The Apple in Cold Storage. By G. H. Powell and S. H. Fulton. United States Department of Agriculture, Washington, D. C. 1903.——The Economic Value of Our Native Birds. By H. A. Surface, Pennsylvania Department of Agriculture, Harrisburg, Pa., November 15, 1903.——The Monthly Bulletin of the Division of Zoölogy. Volume i. No. 8. 1903.——Information Concerning Common Goats. United States Department of Agriculture, Washington, D. C. 1903.——Spotted Fever (Tick Fever) of the Rocky Mountains. A New Disease. By John F. Anderson. Public Health and Marine-Hospital Service of the United States, Washington, D. C. 1903.——Pruning. By L. C. Corbett. United States Department of Agriculture, Washington, D. C. 1903.

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"PUERPERAL SEPSIS, AND ITS TREATMENT BY IODINE."

In a comprehensive paper, published in the *New York Medical Journal and Philadelphia Medical Journal* of January 23, 1904, Dr. William R. Pryor lays stress upon the confusion prevailing in respect to the nature of puerperal sepsis and the need of clearly differentiating between septic and nonseptic cases, therapeutic measures indicated in the one class of cases being harmful in the other. Dübendorfer, working in Döderlein's clinic, having found streptococci in 72 per cent. and

the bacillus coli in 42 per cent. of *pregnant* women's vulvæ,—a result coinciding with the observations of Döderlein, Bumm, Burkhardt, and others,—it is plain that examination of the vulvar napkin *after* delivery affords no reliable information as to the nature of the infection in a particular case. Moreover, although Krönig found streptococci in but 1 of 167 cases and John Williams in none of 117 cases, Walthard found them in 27 per cent.; Gönner in 5 per cent.; Koblanck in 10 per cent.; Stahler and Winkler, in one series, in 23 per cent., and, in another series, in 50 per cent.; Dübendorfer in 36 per cent. All this evidence sustained by Stoltz's elaborate investigations attest, according to the author, to the common presence of streptococci and colon bacilli in the vaginæ of pregnant women. He concludes, therefore, that "it is unsafe to pronounce a given case of puerperal fever septic merely upon an examination of the vaginal secretion, even though this be secured by means of the most precise technique." The diagnosis of puerperal sepsis, therefore, should be based upon an examination of the uterine contents.

In the contents of the uterus in 262 afebrile puerperæ studied by Franz germs were found in 57 instances; another series of 120 cases showed germs in 71: streptococci, 9 times; staphylococci, 12 times; and the colon bacillus once. This was confirmed by some observers and disputed by others: a feature to be ascribed to variations of technique. Pryor interprets this as indicative of the fact that germs known to be pathogenic are occasionally present in the uteri of afebrile puerpera, and the puerperal woman "may harbor pyogenic cocci and bacilli without detriment to her." But when do these germs become virulent?

Walthard found that pyogenic cocci may be present in the uterine cavity and behave as saprophytes, remaining upon the surface of the endometrium without penetrating it. If the secretions become locked, or the endometrium is subjected to trauma, these pyogenic cocci may assume marked virulence. This accounts, according to Pryor, for the high mortality attending curetting; the sudden drop in temperature after irrigation, followed often by a rapid rise and aggravation of all the symptoms; and the rapid recovery under a simple packing of the uterus with strong iodoform gauze.

The clinical distinction between the two methods of behavior is determined as follows: If, under simple irrigation and packing with iodoform gauze, a case which has been shown to be streptococcic does not rapidly recover, the case may be laid down as one of infection by streptococci which are acting as septic, and not as saprophytic germs.

To collect the lochia for examination the Döderlein method is employed by the author. "The patient is drawn to the edge of the bed and the perineum retracted by a sterile speculum, so as to expose the cervix. This latter is grasped by forceps and pulled close to the vulva. The cervical canal is, in this way, made to gape widely. The cervix is then cleansed carefully by means of cotton, and a curved glass tube is passed to the fundus, care being taken that it does not touch the vulva or vagina. Either by means of a rubber suction-ball or by pumping the tube up and down, a portion of the lochia is drawn into the tube. Both ends of the tube are then sealed by melted sealing-wax or the tube can be slipped into a large test-tube. The bacteriologist at once makes a smear and stains it, and also inoculates culture-media with the fluid which has been collected. In this procedure

there can be but one element of error, and that is in case the cervical canal alone be infected: a very rare occurrence. Döderlein's method is now accepted as the only reliable one. In all others there are too many possibilities of mistake."

Another source of infection lies in the loss of resistance found in the infected tissues, or trauma inflicted directly upon the uterus. Again it is generally admitted that the morbidity is largely governed by the *number* of examinations made before and during labor. If the bacteriological examination suggests infection by either the *streptococcus pyogenes,* the staphylococcus, or the colon bacillus, and if the constitutional symptoms are not grave, the author washes out the uterus first with Thiersch's solution, then with boric acid, and *packs it full* of 10-per-cent. or even 20-per-cent. iodoform gauze; all of which can be done without narcosis and with the production of but little pain. If the infection is superficial the amelioration of symptoms is sudden, and nothing more is needed than to remove and renew the uterine packing in three days. The second dressing is removed in two more days and is not renewed. This method of procedure is a safe one to follow in all of the milder forms of puerperal fever, whether due to cocci acting as saprophytes or to saprophytic bacilli; but, if applied in the purely sapræmic types, a digital exploration of the uterine cavity should be made, to discover and remove fragments of placenta or membranes which so frequently are present.

If this method of treatment does not succeed in controlling within six hours a case of streptococcic endometritis, the germs have penetrated deeply into the mucosa, constituting a case of true septic endometritis or puerperal sepsis.

The streptococci penetrate the thickness of the endometrium, and most often at the placental site, through all the component parts of the endometrium. When the muscularis is reached they proceed equally rapidly through the lymph-channels and blood-sinuses. After reaching the periphery of the uterus they extend to the general circulation very rapidly through both the lymphatic and venous systems. In no instance in which the author found cocci in the uterus did he fail to find them also in the fluid of the peritoneal cavity. Any method of treatment adopted, therefore, must assume the existence of a general invasion.

Many of these infections are mixed. In all of the 37 cases in which bacteriological examinations were made of the pelvic fluids streptococci were found. The writer concludes, therefore, that in streptococcic septic puerperal fever pelvic lymphangitis and phlebitis are early complications.

The aim of treatment is not only to combat the disease within the pelvis, but also to counteract the general infection. This result is secured by isolating the infected uterus between masses of iodoform gauze, and by local and systemic iodism to destroy the cocci. The author then describes the procedures resorted to as follows:—

"*The Dressing.*—The manner in which this is prepared is of the utmost importance. The best plain gauze, in five-yard rolls, is sterilized. It is then dipped into a 5-per-cent. solution of iodoform crystals in ether. About one pound of the solution is sufficient for five yards of gauze. The ether is then allowed to evaporate. When dry, the gauze has a pale-blue tint, owing to the action of free iodine upon the starch in the cotton-fiber. In this state the gauze is unfit for use. The gauze is then dipped in a hot, aqueous solution of bichloride of mercury, 1 to 4000, and

wrung as dry as the hands can. The bichloride acts as a fixing agent and the gauze becomes of the golden yellow characteristic of the presence of iodoform. But no crystals of iodoform are seen, for the drug has been carried by the ether into every hollow bast cell of the cotton-fiber. It is also probable that the gauze contains a trace of the single iodide of mercury. The drug-laden dressing is then packed into jars and sterilized for a half-hour. When such a dressing as this is placed in contact with raw surfaces, such as those produced by a broad amputation of the breast or the abdominal incision when treated by the open method,—in other words, when placed in contact with severed tissues,—the iodoform is broken up very slowly and very little iodine is absorbed. But when the iodoform as embraced in this dressing is brought into contact with a serous surface its disintegration into its component parts is very rapid and its iodine becomes absorbed at once. The presence of inflammation in the peritoneum has no influence upon the process, even when a purulent effusion from the peritoneum is present. A gauze of 10-per-cent. solution strength is prepared for use within the uterus.

"*The Operation.*—Most of my material is brought to me after other measures have failed to relieve. In not a single instance have we failed to find albumin in the urine, and many of the cases have presented grave changes in the kidneys. We have therefore been compelled to aid the kidneys in their eliminative functions. This we have done in the milder cases by high colon enemata of saline solution, and in the gravely ill by intravenous infusion. The latter may be given before operation under local anæsthesia, during the operation, or after. We are in the habit of using rather large quantities of fluid, the minimum amount being 5 pints and the maximum 8 pints. We give it very slowly at a temperature (at the vein) of 115° F. I have taken three-fourths of an hour for the infusion alone. I consider this subject of temperature of the fluid and the amount and the speed of its instillation of the utmost importance. The rule generally obeyed is: the weaker the heart-muscle, the slower the infusion; and the more damaged the kidneys and the higher the specific gravity of the urine, the larger the amount of fluid to be used. There is another advantage in employing large quantities of water. As a rule, the concentration of the urine is marked, few specimens being below 1.025 specific gravity. The operation itself will raise this, and, as the iodine is eliminated by the kidneys a still further rise would follow were hydrotherapy not employed. It is needless to state that hydrotherapy, practiced alone, would cause an amelioration of the symptoms.

"The cervix is thoroughly dilated and the uterus curetted. A specimen of the *detritus* removed is saved for examination. The uterus is then irrigated with saline solution to remove *débris* and is packed full of iodoform gauze of 10-per-cent. strength. By a broad incision the posterior *cul-de-sac* is opened. In all instances a considerable quantity of fluid escapes. This may be serum, sero-lymph, sero-pus, or almost pure pus. If there is much effusion of lymph the organs may be matted together, and, if so, all adhesions are rapidly severed by the fingers. I now lift up the uterus with the towel and depress the posterior vaginal wall. Generally, the rectum will prolapse into the wound or a knuckle of intestine will present. From the surface of either I pick off a bit of lymph or wipe some fluid, and keep it for examination.

"The pelvis is now packed full of iodoform gauze of 5-per-cent. strength. As this folded dressing is withdrawn from the jar it will be of one yard width. Pieces are cut off of an average length of eight inches, so that each piece I insert into the pelvis will be, if unfolded, one yard long and eight inches wide. They are inserted, however, folded. From ten to fifteen of such pieces are inserted. The first is passed well to one side of the pelvis, over the iliac vessels and extending to the pelvic brim. It is held in place by a long retractor. Other pieces are placed alongside this so as completely to fill the pelvis from side to side, and to be in apposition with the posterior layers of the broad ligaments and uterus, and in contact with all that portion of the pelvic peritoneum which overlies those lymphatics and veins that carry the infection. The gauze should not project from the vulva. A self-retaining catheter is inserted and such cardiac stimulants employed as the heart-muscle demands. I employ nitroglycerin, digitalis, and *moderate* doses of strychnine. I may speak against those massive doses of strychnine given by some, as they induce contraction in the arterioles: a condition most undesirable in streptococcic infection.

"The first local effect of the operation is an enormous outpouring of serum by the peritoneum. This I have never been able to measure, but it is frequently sufficient to soak the drawsheet within a day and render frequent changes in the vulvar pads necessary.

"The catheter is opened every three hours, the urine measured and tested for iodine as well as in the usual way. We employ the chloroform-nitric acid test for iodine. Frequently in two hours, and on an average in five hours, we have secured a marked reaction of iodine. In order to keep up the function of the kidneys, and assist them to eliminate the iodine, I give saline enemata in 8-ounce quantities every four hours. The posture of the patient is a matter of indifference.

"It will usually be noticed that the specific gravity of the urine rises in proportion as the iodine is eliminated. We have never noticed an iodine eruption, but in three instances mild systemic effects were produced,—dry, red tongue, delirium, etc.,—but these passed off."

Almost immediately after the operation the temperature drops. In eight instances, and only when infusion was employed, a violent chill and great acceleration in pulse-rate as the patient came out of ether, was noticed. Although infusion has been used very often in other conditions, he had never noted this chill under circumstances other than when streptococcic infection was present. Vigorous stimulation with brandy by rectum and nitroglycerin hypodermically, champagne, and cracked ice or acidulated sterile water by mouth, are allowed in six hours. Liquid diet is permitted in twenty-four hours.

The *cul-de-sac* dressing is removed in one week and is renewed. All dressings are saved and examined bacteriologically. In every instance, save one, the pelvis was free from cocci at the second dressing. The colon bacillus was found invariably present upon all dressings. Slight damage to the peritoneum-covered tissues suffices to secure its presence. It is probably devoid of virulence, unless associated with cocci or in the presence of greatly damaged tissues. The aim has been to destroy the streptococci. In the series of cases (37) 4 deaths occurred, all from complications.

The author failed to isolate iodine from the blood-serum. In the only instances (2) in which the blood was examined for this purpose, hæmoglobin was found *increased.*

The author concludes with the remark: "I have operated upon 37 women. In 36 streptococci were found in the uterine scrapings, and in 37 they were secured from the *cul-de-sac.* Torrens has operated on 6 cases, in all of which streptococci were found in the uterus and *cul-de-sac.* Killebrew (Mobile) has operated on 2 cases. Brooks H. Wells has performed 8 operations. In 10 instances a previous curetting has been done, and 3 patients died: 33-per-cent. mortality. In 43 cases not previously operated on, 1 died: a mortality of 2 per cent. These 4 deaths were due: 1 to bilateral broncho-pneumonia and 3 to endocarditis with pneumonia.

"As to the morbidity, we have found that 6 of the subjects have subsequently conceived, 5 going to full term and 1 inducing abortion at the fifth month. Contrast this treatment with that by curetting alone, with a mortality of 22 per cent.; antistreptococcic serum—mortality, 33 per cent.; hysterectomy—mortality, 55 per cent.; and let-alone treatment—mortality, 7 to 25 per cent.; and we have nothing for which to apologize. But there is another phase to the subject. All the women we have operated on and who have lived retain their uteri, and six that we know of have a restoration of physiological function.

"Can the hysterectomist point to such a result? And can he who folds his hands and does nothing see so slight a degree of morbidity in his cases? Even though our enthusiasm for this treatment, this isolation of the infecting organ and the establishment of local and systemic iodism, be not shared by you, I am not asking too much when I expect you to grant that: (1) in no case has death resulted directly from the operation; (2) there is no mutilation; (3) the pelvis is rendered free from streptococci; and the results can be accounted for in no other way than as the result of the action of iodine."

He believes that the mortality would be much lower if the operation were applied as soon as the cases were shown to be septic.

Commentary.—I have previously referred[1] to the manner in which iodoform destroyed pathogenic elements (in the light of my own views): *i.e.,* by actively stimulating the anterior pituitary body, and thus greatly increasing the production of adrenoxin. This body, to which all organs owe their exacerbations of activity, increases the production of trypsin, which, in turn, converts the convulsion-producing elements into benign and eliminable waste-products.

Can we, however, with Dr. Pryor, regard the toxins of pathogenic bacteria as the sole or even the main direct cause of the convulsions? I have elsewhere[2] expressed the view that the convulsions in this and kindred disorders were due to *"an accumulation in the blood-stream of toxic waste-products."* In a recent paper Barton Cooke Hirst[3] states: "There is no theory yet advanced which has the same

[1] Monthly Cyclopædia of Practical Medicine, September, 1903, page 322.

[2] "Internal Secretions and the Principles of Medicine," page 769.

[3] "Proceedings of the Philadelphia County Medical Society," December 31, 1903, page 261.

basis of common sense and is in such accord with clinical observation as the long-accepted view that the *products of fœtal metabolism* discharged into the maternal blood and eventually eliminated by the maternal kidneys are the chief predisposing cause of eclampsia, and that insufficient elimination by the maternal kidneys is the chief exciting cause." As Hirst admits, however, the convulsions may occur weeks after delivery: "Eclampsia," says this writer, "has occurred as early as the second month of gestation. But it is open to question whether these cases are not ordinary uræmic convulsions."

What is the cause of uræmic convulsions? Uræmia is ascribed to the retention in the blood of unidentified toxic substances which should be eliminated in the urine. "It is partly on account of this multiplicity of substances retained in the blood at the same time *with urea*," says Herter,[4] "that we are unable to fix more definitely on the part which urea plays as a toxic substance." If, on the other hand, we now attempt to ascertain the identity of toxic products of metabolism, we are told by Howell[5] that "animal protoplasm is pre-eminently catabolic, and the evidence of its catabolism is found in the waste-products, such as CO_2, H_2O, and urea." It seems evident, therefore, that the eclampsia of gestation caused by "products of fœtal metabolism" and that occurring after childbirth, which Hirst ascribes to uræmia, have so much in common that they may be deemed identical.

The relation between the pathogenic organisms, to which Pryor refers, and eclampsia as a disease remains obscure. Might we not, however, invoke a little more "common sense" and inquire whether the accumulation of waste-products, the *source* of renal irritation, must not itself have a cause? This is where the toxins of pathogenic bacteria intervene. By inhibiting the production of adrenoxin they prevent the destruction of products of metabolism.

C. E. de M. Sajous.

Cyclopædia of Current Literature.

ACTINOMYCES: MORPHOLOGICAL AND REACTIONAL CHARACTERS OF THE FUNGUS IN THE TISSUES.

Dor (La Presse Médicale, lxxvii, page 654, 1903) gives a very simple method of making a diagnosis. In an ordinary test-tube as much of the pus as possible is collected. In a second tube, by expression or curettage, the fungous products and sanguinolent fluid are allowed, by inclining the tube, to come in contact with as much of the inner surface as possible. The same process must be gone through with the first tube, although it is not so apt to be successful as with the second. When the fibrin has

[4] New York Medical Journal, May 21, 1898.

[5] "American Text-book of Physiology," volume i, 1900, page 20.

coagulated, the small grains, which are clearly discernible as nodular elevations, may be picked off with a platinum rod and carried to the slide, on which has been placed a drop of picrocarmine solution. This is allowed to act for a minute and a cover-glass is gently applied. If the ray-clusters are present they will be stained an orange yellow or bright yellow in sharp contrast to the carmine staining of cells and their nuclei. The endothelial pearls found by Rouffiandis in a special form of suppurative endothelioma, and called by him *"dermite perlée,"* might lead to confusion which a staining by a Gram would easily clear up in revealing in the ray-rosettes the dichotomized filaments in the form of Y. In the disease of the horse called botryomycosis, and rarely in human botryomycosis, similar granules are present, but have nothing in their microscopical appearance that might lead to mistaking them for actinomyces. Dor enters into a consideration of the botanical classification of actinomyces, and considers that, in spite of the researches of Nocard on *"farcin du bœuf"* and the work of Sauvageau and Radais (1892) in establishing the fact that the term streptothrixiæ should not be applied to the ray-fungus, but that it belonged to the oöspora, our opinion should all be revised, since von Niessen, whose results were confirmed by Neukirch (1902), has succeeded in growing on glucosed and maltosed media a parasite having all the characteristics of the clubbed form seen in the living tissues. Von Niessen considers that actinomyces belongs to the *cladosporium,* and not to the oöspora. Dor offers two hypotheses to reconcile this divergence of opinions: first, that actinomyces is a fungus with two types of vegetation—mycelium and "clubs"; and the second is to regard actinomyces as a *lichen—i.e.,* the association of two entirely different parasites, one being a fungus (mushroom) and the other an *alga.* Abstracted by A. D. Mewborn for the Journal of Cutaneous Diseases, January, 1904.

ADDISON'S DISEASE, SUPRARENAL MEDICATION IN.

The writer deduces the following conclusions from his experience in eight cases of Addison's disease treated with adrenalin, and experimental research by himself and others. He warns that this treatment is contra-indicated in severe and advanced cases of Addison's disease, as there is danger from the subcutaneous injections when only a small part of the parenchyma of the suprarenals is still intact and able to fulfill its physiological task. Even in recent and early stages of the disease the dose should never be more than $^1/_3$ milligram. In these early cases we may anticipate that in these small doses the adrenalin will stimulate the still sound portions of the gland to compensating hypertrophy. It is better to subdivide even this dose, and the medication should be suspended if tremor or other indications of intolerance supervene. The longer it is continued, the smaller the dose should be and the longer the intervals. He found an aqueous glycerin extract the best preparation for the purpose, made according to the Brown-Séquard method, not surpassing the dose of 1 cubic centimeter, supplemented, possibly, by ingestion of some other preparation of the glands in the intervals between the subcutaneous injections. He thinks that it may be preferable to substitute oxyadrenalin, which is only one-tenth as toxic as adrenalin itself. He suggests the possibility of anti-Addisonian serum treatment for advanced cases. Six of his eight patients were

very much improved after an average of 220 subcutaneous injections of the glycerin extract of suprarenal capsules: but two others in more advanced stages died in two to four days after this treatment had been instituted. The cases are reported in detail. Boinet (Journal of the American Medical Association; from Bulletin de l'Académie de Médecine, volume lxvii, No. 39, 1903).

ADRENALIN AND GLYCOSURIA.

The author found that when adrenalin is injected into rabbits, whether in the veins or subcutaneously, glycosuria appears. The supervention of fever, however, causes the sugar to disappear from the urine, although the presence of advanced organic disease may prevent this action of the febrile process. E. Aronsohn (Virchow's Archiv, November 4, 1903).

ANGIOMATA, TREATMENT OF.

A thread of catgut is passed in a zigzag manner, first below the skin, then underneath the base of the tumor, then again underneath the skin, underneath the tumor, etc., until the tumor mass is included in this continuous suture. The latter is drawn tight and closed at the point of entrance of the needle. In this manner the circulation is shut off within the tumor, but no gangrene follows, inasmuch as some blood can yet reach the parts not included in the suture. The mass soon grows smaller and the normal epidermis outside of these limits stretches considerably, but becomes elastic and grows again. This procedure is repeated until the tumor is diminished to the smallest possible nodule of connective tissue. The hard, connective-tissue masses are then excised and the edges carefully united. This treatment applies to all varieties of hæmangioma, but in the arterial and mixed varieties it was necessary to ligate the largest afferent vessels, the common carotid artery in one instance, in order to check the rapid growth. Carl Beck (Journal of the American Medical Association, December 26, 1903).

APPENDICITIS, EARLY DIAGNOSIS OF PERITONITIS IN.

No reliable sign can be said to indicate the onset of this complication. The pulse may be normal, though the peritoneal cavity be filled with pus and no rise of temperature occur. The facies even, generally considered as an important sign, may prove misleading. The same criticism applied to the change in the voice and the tendency to syncope.

The writer attaches importance, however, to various combinations of symptoms. Inability freely to pass intestinal gases, pains radiating toward the navel, the altered facies, restlessness, dyspnœa, and hypothermia when combined, for instance, point to the presence of peritonitis. L. Mauclaire (La Médecine Moderne, No. 35, 1903).

APPENDICITIS, THE MORTALITY OF.

If the case is not pursuing a favorable course after thirty-six hours of recognized medical treatment, it should be relegated to the domain of surgery. If the case is doing well within the limit of time mentioned, delay is possible as far as immediate operative interference is concerned; but still the case should be referred to a surgeon with a view to an interval operation. It would be a sad calamity for a patient to succumb to a fatal recurrent attack for want of having had an opportunity offered him to prevent his death. If the opportunity has been offered and the patient declined the operation, the responsibility rests

with him, and the family physician is relieved of it. F. S. Dennis (Medical News, January 9, 1904).

APPENDICITIS, THE STUMP IN SURGICAL TREATMENT OF.

The writer applies two ligatures, one silk and one catgut, to the appendix, and then after loosening the mesentery as far up to the cæcum as possible, transects between them. The stump's mucous membrane is then removed with curved scissors and the muscular coat and serosa are united with three silk sutures. After removing the catgut ligature, three silk sutures are passed through cæcal serosa and muscularis, the surfaces thus approximated being about one-half centimeter wide. This is further strengthened by means of six or seven catgut sutures. The stump, which is thus made to lie in the cæcum, thus drops its silk sutures into this cavity. Riedel (Centralblatt für Chirurgie, December 19, 1903).

ARTHRITIS DEFORMANS.

The writer directs special attention to the three following points: The frequency of the occurrence of acute polyarthritis in arthritis deformans and the danger of mistaking this for acute rheumatism: the importance of the recognition of the spinal forms of the disease, especially the local involvement: and in arthritis deformans we have an obscure disease of considerable frequency worthy of study, especially from the etiological aspect. Thomas McCrae (Journal of the American Medical Association, January 16, 1904).

BLOOD, OSMOTIC PRESSURE OF THE.

The osmotic pressure of the blood is a constant factor, expressed by a definite freezing-point and regulated by respiration, metabolic activity, and renal excretion. Respiration removes carbon dioxide, which normally lowers the freezing-point, and the kidneys excrete certain molecules which would have the same effect. A. Landau (Deutsches Archiv für klinische Medicin, volume lxxviii, Nos. 5 and 6) has studied the congealing point of blood-serum under various conditions, in order to determine to what extent this may be looked upon as an index of renal function. Unfortunately his efforts tend to minimize the practical importance of cryoscopy. It appears that food has little influence; thus, with a strict milk diet, normal figures were obtained, though the serum was considerably poorer in nitrogen than before. This nitrogen loss depends upon a deficiency of albumin; since albumin, however, consists of very large molecules, no variations in the freezing-point can be expected. After the use of thyroid tablets the osmotic pressure becomes subnormal, due to reduction in chlorides, secondary to more active metabolism. In Bright's disease an increased osmotic pressure, manifesting itself in a freezing-point below — 0.58° C. seems to point to a retention of excrementitious products, but normal figures indicate renal sufficiency only if the serum is not poorer in nitrogenous substances. Even in uræmia and advanced nephritis cryoscopy may give no clue as to the condition of the kidneys, since a dilution of serum occurs which compensates for any change. This fact will limit considerably the usefulness of cryoscopy in surgery, unless accompanied by a chemical examination of the serum. Occasionally the latter will also yield normal results in nephritis, but here the compensation is perfect. The influence of fever, as in typhoid, pneumonia, etc., is not constant, as the pressure may be

normal, increased, or diminished without any relation to the nature of the disease. In diabetes the freezing-point is generally found subnormal, owing to the presence of glucose, acetone, and diacetic acid in the serum. In pernicious anæmia the serum congeals at a somewhat higher temperature than normal, owing to larger amount of water present. (Medical News, January 23, 1904).

CANCER, TREATMENT OF, BY PHYSIOTHERAPICAL MEASURES.

Dr. J. A. Rivière, in a communication to the National Academy of Medicine, France, on December 8, 1903, formulated the following conclusions: 1. The practice of physiotherapy, which dates from our communication to the International Congress of Medical Electrology and Radiography ("The Physiotherapical Treatment of Malignant Tumors"), for the cure of neoplasms should be recognized by modern medicine as a most useful method of producing the diminution of tumors, the relief of pain, and the dispersal of ganglionic enlargements. 2. Physiotherapy is the only method that should be used in certain inoperable neoplasms or in those in which recurrence is inevitable; in acute and vegetating ulcerous forms of epithelioma; and in recurrent and rapidly increasing sarcomata and carcinomata, subsequently to surgical intervention. 3. Preference is given to radiotherapy, static discharges, and currents of high frequency, without, however, neglecting general physiotherapeutic measures (static baths, d'Arsonvalization, etc.), as well as calomel and quinine internally, so as to stimulate elimination and to neutralize the neoplastic elements set loose by local treatment and returned to the circulation. 4. The most noteworthy effects of this treatment are: The disappearance of œdemas, engorgements, and indurations; the cessation of lancinating and other pains, the rapid and complete cicatrization of rodent ulcers; the subsidence and shriveling of vegetating growths; and, in short, the complete disappearance of the cachexia and wasting, and the restoration toward integrity of the general condition. 5. While success is frequently attained in the case of postoperative returns, it is much better that growths should be treated by these measures from the outset. Radiotherapy should always be employed at the commencement of the lesion, for histological observations show that the neoplasm is always of greater extent than the apparent lesion. 6. In spite of notable and rapid ameliorations (subsidence of the pain, disappearance of the foci, and arrest of the adenopathic proliferation), perseverance is indispensable in treatment by physiotherapical measures; and especially the continuance of general methods directed to the improvement of the diathesis. 7. The writer thinks he can safely assert that the treatment of malignant growths has entered on a new phase, thanks to the application of physiotherapical methods. The facility, simplicity, and promptitude of the treatment, the æsthetic regularity of the results, and the return to normal of the implicated functions, all confer on physiotherapy a great value, in both the number and the completeness of cure in cases, primary and recurrent, that have hitherto seemed beyond the resources of our art. (New York Med. Jour. and Phila. Med. Jour., Jan. 16, 1904).

CARCINOMA AND TUBERCULOSIS TREATED BY THE ROENTGEN RAYS.

The *x*-rays are of undoubted value in the treatment of certain cases of both superficial and deep-seated carcinoma

and tuberculosis. The more a case has been tampered with, the less likely it is to yield to the influence of the x-rays. Daily treatments, carefully and properly given, will produce the best results. We should try never to produce a dermatitis beyond a simple erythema. There are idiosyncrasies in certain people which render them most susceptible to the x-rays, and in these people deeper burns may occur in spite of the most careful treatment. Epithelioma, involving the mucous membrane, is much less likely to yield to the effect of the x-rays than when it simply involves the skin. There is not likely to be any interference with the sense of sight, even though the x-rays are used directly over the eye. Tuberculosis, whether of the skin or of the glands, will yield at least in certain cases to the effects of the x-rays. The x-rays may be of value in certain cases of deafness. The x-rays will give better cosmetic results than any other form of treatment in simple epithelioma of the face. Epithelioma of the mucous membrane should be removed as early as possible by the knife, and this followed by x-ray treatment. Operable cases should be operated on and in each instance followed by a course of x-ray treatment, and x-ray treatment should be given at the first sign of recurrence. Inoperable cases should be given a trial with the x-rays, since even hopeless cases sometimes yield to this form of treatment. It is desirable to produce a distinct reaction in the treatment of lupus. G. E. Pfahler (Journal of the American Medical Association, December 5, 1903).

CARCINOMA OF THE RECTUM, THE INDICATIONS AND CONTRA-INDICATIONS FOR THE RADICAL CURE OF.

Without entering into a description of carcinoma of the rectum, there are one or two points which should be considered. Carcinomatous growths of the rectum are in the beginning painless, only giving rise to difficulty at stool, with an alternating diarrhœa and constipation, which do not reveal the really serious condition of the patient. This indolence in the early stages of rectal carcinoma is a great misfortune, because, since the patient does not suffer, the neoplasm is allowed to continue its growth for many months before medical aid is asked for.

Then, again, muco-purulent or bloody stools are voided, in which case the patient will himself surely make a diagnosis of hæmorrhoids, and again a serious diagnosis is delayed for a number of months; and if, by chance, a physician is consulted for these slight disturbances, he unfortunately only too often is content with giving a prescription to the patient and completely neglects a digital examination of the rectum. Such conduct on the part of the profession is a serious mistake, and every physician should be guided by a rule which should be ever present in his mind, that a systematic examination of the rectum should be made in every case in which a patient comes complaining of the preceding symptoms. It is quite true that the patient himself does not always wish to submit to an examination, but the physician familiar with the consequences which the want of a local examination may cause should persuade his patient in each and every instance to undergo it.

It is consequently by a rectal examination that the contra-indications for surgical intervention are made, as, for example, if the bladder, prostate, or seminal vesicles are involved in the process. When the neoplasm has extended beyond the limits of the rectum and all the organs within the true pelvis are in-

volved, extirpation by the sacral route will naturally be incomplete and the result disastrous, and a palliative operation alone will remain.

It must be said that, in many instances, a carefully directed examination may lead the surgeon into error and it is only during the operation that one finds that the case is an inoperable one. Such, for example, are those instances in which the adhesions between the rectum and prostate or neck of the bladder are such that it would be imprudent to continue the operation; and medical literature, especially that coming from Germany, abounds in such cases.

Is it possible before undertaking a radical intervention to discover whether or not the lymph-nodes are involved, and more especially whether the growth has extended to the neighboring organs? It is very difficult, but Quénu has proposed a means which will give an exact idea of the lesions. This is accomplished by a digital examination through an abdominal incision when this is made for the radical operation or when an artificial anus is to be established.

The involvement of the inguinal and pelvic lymph-nodes has, however, not been a contra-indication for certain surgeons, and during a radical operation very large masses of lymph-nodes have been removed; but such operative recklessness can only render the prognosis very dark.

The diagnosis of the seat and extension of the lesions having once been determined, one should next consider the methods to be chosen for the various types of rectal carcinoma that have here been discussed. Recto-sigmoid carcinoma does not enter into the subject proper, but it may be said in passing that combined abdominal, sacral, and perineal operations have their indications. The recto-pelvic type of carcinoma may be treated by the sacral route, or perhaps still better, by prerectal resection, while Lisfranc's amputation, as modified by Quénu, will be the operation of choice in recto-perineal carcinoma. The sure method is also indicated in cases of cancer of the anus or those in which the neoplasm is situated in the lower end of the rectum.

When the neoplasm has completely invaded the neighboring organs and peritoneum, if the cachexia is marked, all extensive operations are instituted with an endeavor to control the pain and prevent secondary infection and intestinal obstruction. To meet these indications, inguinal colostomy and proctotomy, followed by curetting of the growth, are proper, but dilatation should never be employed.

And, last, there is a general condition which should always seriously be taken into consideration when any operation is to be undertaken on a cancerous subject; we refer to the general health. This has been purposely left aside until now, because it is, by all odds, the most important. An operation for carcinoma of the rectum, no matter what technique is used, will always remain a serious one, and on account of this gravity a medical operation should never be undertaken in patients advanced in age or weakened by various disturbances of nutrition. To succeed, and this is the aim of all true surgical spirit, radical operations should not be performed unless the patient is fairly vigorous; we say fairly, because carcinomatus subjects who come for operation have usually arrived near the borderline of cachexia; but, if the operation can be carried out during the early stages of the affection, the surgeon is authorized to deliver his patient of a disease which sooner or later will lead

him to the grave. C. G. Cumston (New York Medical Journal and Philadelphia Medical Journal, January 23, 1904).

CARDIAC DISPLACEMENT.

In cases of displacement the heart tends to move as a mass to the right or left. Rotation is very rare, and accompanied, when found, by exceptional conditions or brought about by the presence of contracting adhesions. Practically in all cases the visible cardiac impulse to the right of the sternum is caused by the base of the heart, and not by the apex. Extreme displacement may take place without the slightest discomfort to the patient. The sudden deaths occurring in the large pleuritic effusions are not due to the cardiac displacement. A. K. Stone (Boston Medical and Surgical Journal, January 14, 1904).

DRUGS, ANTAGONISTIC ACTION OF.

Strychnine does not seem to affect the pulse when given simultaneously with alcohol. In some cases strychnine seems to counteract in part the depressing effect of acute alcoholic poisoning on the respiration, and thus prolong life. The one apparent exception is doubtless explained by the poor physical condition of an animal receiving strychnine, and by the small dose. Strychnine does not seem to interfere materially with the narcosis from acute poisoning with alcohol, but, apparently, does delay the onset of paralytic symptoms. In subacute alcoholic poisoning strychnine seems to lessen the narcosis and paresis in the earliest stages, but in the later stages to increase the depression. However, a general conclusion is hardly justified, since only one control experiment was made. Although in no case was the strychnine competent completely to remove the effects of the large doses of alcohol which were employed, yet it may be considered probable that appropriate doses of strychnine (fairly strong therapeutic doses) would prove useful in the treatment of poisoning from even lethal doses of alcohol. No action on the nerve-cells by either alcohol or strychnine was demonstrable histologically. Many drugs depress the activity of yeast-cells, but no reliable stimulant was found; therefore, the antagonism of drugs in their action on these cells could not be studied. Heat was found to be a reliable stimulant up to 45° C., but strychnine as an antidote to heat did not give uniform results at the successive temperatures, so that the antagonism is not a simple one. H. D. Haskins (American Journal of the Medical Sciences, December, 1903).

EPILEPSY, TREATMENT OF, BY ROENTGEN RAYS.

The writer reports encouraging results in the treatment of epilepsy by means of the Roentgen rays. He states that in many instances the occurrence of the seizures is believed to depend upon the instability of the cellular brain-elements, or an abnormal metabolism, and, as it is accepted by many authorities that the x-ray stimulates the vital activity of protoplasm, it is upon this theory that the treatment is adopted. Naturally all cases of epilepsy are not amenable to it, as, for instance, those in which decided degenerative processes in the brain have set in. By radiographs taken personally, the writer demonstrates that part of the x-rays unquestionably pass through the skull, and he regards it as fair to assume that more than twice the quantity pass through the middle of the brain, as in light the power diminishes by the square of the distance. In his cases three treatments per week are given, beginning with five minutes' exposure at fifteen inches'

distance, and gradually extending this to ten minutes' exposure at ten inches' distance. A hard, or high-vacuum, tube is employed, and a different part of the skull is exposed at each sitting. In both *grand* and *petit mal* it has been observed that the seizures became lighter and of shorter duration, the intervals became longer, and, if an attack occurred, it was followed by less prostration.

In patients with six to eight seizures a day, after the treatment had been taken for a few weeks, intervals of two and three weeks were noted. The hair may drop out in areas, but it is certain to return in a stronger growth than before. In a few instances, where the patients appeared to have acquired a bromide-drug habit, the best results were obtained by continuing small doses of bromides, in addition to the x-ray treatment. With few exceptions the patients gain in weight at an impressing rate. A remarkably successful case was presented, that of a lad 14 years of age, who had not had a single seizure since the treatment was commenced, on November 8th, and who had astonished his family and teachers by the extraordinary improvement he had made both mentally and physically. J. H. Branth (Boston Medical and Surgical Journal, January 21, 1904).

ETHER NARCOSIS COMBINED WITH MORPHINE AND SCOPOLAMINE INJECTIONS.

Hartoz (Münchener medicinische Wochenschrift, November 17, 1903) says that ether is gaining ground rapidly in Germany as a routine anæsthetic, and that its tendency to produce postanæsthetic nausea and aspiration pneumonia is practically its only drawback. The latter complication is due to the inhalation either of the saliva, which is always secreted in large quantities, or of vomitus. Various attempts have been made to modify this tendency of the anæsthetic, and of these the most promising is the injection of scopolamine and morphine. As first used, this combination was intended to supplant other anæsthetics completely, and the alkaloids were given in doses sufficient to paralyze the faculties without the assistance of any other agent. The high mortality which speedily followed, however, proved the method too dangerous to be persisted in, but the author has found that, given in amounts too small to be hazardous, scopolamine and morphine react most favorably on ether anæsthesia, producing a narcosis agreeable to the patient and free from vomiting or salivation and the dangers attending them. The routine is as follows: First the usual preparation, catharsis, fasting, etc.; then one-half to one hour before the operation the injection of $^1/_2$ milligram of scopolamine, in freshly prepared solution, and 1 centigram of morphine. The anæsthesia is begun one-half to one hour later with ether, on Wanscher's mask, administered very gradually, so that the surgical degree is not produced till ten minutes or more have elapsed. No danger need be apprehended from this dosage, and the patients are not salivated or nauseated and recover from the anæsthetic without the usual prostration. Ninety-three cases treated in this way gave excellent results, but on several subsequent occasions a protracted tachycardia was observed. (Medical Record, December 12, 1903.)

GENITO-URINARY TUBERCULOSIS, THE VALUE OF CLIMATE IN.

There are three important points to be attended to in the treatment of genito-urinary tuberculosis: (1) proper cli-

mate, (2) proper food, and (3) urinary antiseptics and sedatives—both by the mouth. Local treatment is rarely of service; it may do harm. The kind of climate best adapted to such cases is the kind usually recommended for pulmonary tuberculosis. A moderate altitude and dryness seem the chief requisites. Possibly genito-urinary cases might do well at the seaside or in pine-woods at almost sea-level. W. H. Prioleau (Medical News, January 9, 1904).

GLOSSITIS AND STOMATITIS CAUSED BY A STREPTOCOCCUS.

Reports of tropical cutaneous affections have an interest much greater than the natural curiosity which every dermatologist takes in the description of rare exotic affections, and that is the question of climatic accentuation in virulency of well-known micro-organisms. The authors, attached to the indigenous hospital at Tananarive, have here presented an unusual exfoliative affection of the tongue and mucous membrane of the mouth due to a streptococcus found in long chains. Slides prepared from tongue scrapings and cultures in bouillon have always revealed the same streptococcus, which has been verified by Thiroux, director of the local Pasteur Institute, as the pathogenic agent. The affection has only been observed at Madagascar where it is endemic and at times epidemic and, while chiefly confined to the natives, the Europeans are not immune to it. The attack usually commences with a feeling of general malaise, slight fever, constriction in the throat, enlargement of submaxillary glands, and a burning or prickling sensation in the tongue. In a day or two a small exfoliation of the mucous membrane of the tongue occurs, spreading peripherally and joining other patches to form polycyclical, shiny or "varnished" areas with a slightly elevated, whitish border. The unaffected parts of the tongue accumulate a thick coating, which gives a striking contrast. The entire tongue may become denuded and resemble the varnished tongue of scarlatina. On the mucous membrane of the cheeks the patches may somewhat resemble mucous patches and might be mistaken for syphilis, but on the tongue the appearance is unique.

The affection seems to present no serious complications, and heals in the course of a couple of weeks under local applications of permanganate of potash. Chlorate of potash has no beneficial effect.

The condition known as "wandering rash," *exfoliatio areata linguæ*, or *"glossite exfoliatrice marginée"* (Fournier) certainly resembles in some respects the disease just described, especially in the slightly elevated, whitish borders, but it, of course, differs greatly in being much more chronic and not accompanied by fever or glandular enlargement. Fonoynont and Jourdran (La Presse Médicale, lxiv, page 653, 1903). Abstracted by A. D. Mewborn for the Journal of Cutaneous Diseases, January, 1904.

HEART-FAILURE IN TOXÆMIC CONDITIONS.

Beriberi and diphtheria have a marked degenerative action on the heart-muscle, which frequently causes fatal circulatory failure. In this respect beriberi and diphtheria resemble other toxæmias, such as influenza and alcohol and arsenic poisoning, which often cause peripheral neuritis, and also other toxæmic diseases, such as typhoid fever, plague, and acute rheumatism, which do not or but rarely give rise to peripheral neuritis. Beriberi and diphtheria are the diseases *par excellence* in which sudden fatal heart-

failure occurs. The heart-muscle degeneration is not a secondary result of neuritis of the vagus. The heart-muscle degeneration takes place, as a rule, before skeletal-muscle degeneration, and is the result probably of direct action of the toxin, and not a secondary result of nerve-change. Sudden heart-failure does not indicate a sudden lesion, but rather is the result of a gradually increasing heart-weakness from cardiac-muscle degeneration, which may be precipitated by any sudden exertion, but more frequently is the result of the principle of "all or nothing," the transition from "all" to "nothing" being necessarily rapid. The cardiac physical signs of beriberi closely resemble those found in diphtheria, and are of paramount importance in prognosis and treatment. Arthur Stanley (British Medical Journal, December 26, 1903).

HEPATIC DRAINAGE IN INFECTION OF THE BILIARY TRACTS.

The writer emphasizes the fact that infection of the liver and its ducts can be cured by surgical means. Such infection is nearly always accompanied by gall-stone formation, and is liable at any time, from common-duct obstruction, to be a source of deadly peril. He believes that the greater number of patients who are classed as dying from cholæmia really suffer from infection, with its attendant injury to the liver-cells, and not from the retention of the bile *per se*. Such patients can be saved by drainage.

The following conclusions are offered in the light of present experience with a desire to hear discussion upon them: Suppurative cholangitis should be operated on before the infection injures the liver-cells and before the retained bile has a chance to react injuriously upon the general organism. The presence or absence of gall-stones is of no moment in deciding for early operation, though they are usually present. Cholecystostomy is the operation of choice where the lesion is acute and the gall-bladder has been functionating up to the time of infection. Excision of the gall-bladder can safely be performed in chronic calculous cholecystitis with an obstructed cystic duct. Hepatic drainage must be provided for in all cases where infection is present or suspected; either through the gall-bladder or by opening the common duct or the hepatic duct. Abscess of the liver is prevented and pancreatitis relieved by prompt drainage of infected bile-ducts. J. B. Deaver (New York Medical Journal and Philadelphia Medical Journal, January 23, 1904).

HYPERTROPHY OF THE PROSTATE GLAND, SENILE, RADICAL CURE OF.

The writer, from a review of the results obtained, believes the following deductions are justifiable: A routine method is not applicable to the treatment of prostatic hypertrophy; every case is a law unto itself and the treatment will depend on the various conditions presented in each individual case. The dangers attendant on the daily catheterism are greater than those of a radical operation performed at the onset of the symptoms caused by the obstruction. The proper time to perform a radical operation is reached as soon as it becomes necessary for a patient to resort to daily catheterism. The gratifying results obtained by a number of the operations in many cases demonstrates that the Bottini operation is one of great value. It is applicable to a large percentage of cases, which, if properly selected, has proved to be the safest and best method of relieving an obstruction

caused by prostatic hypertrophy. In those cases in which a stone in the bladder is associated with a prostatic enlargement, litholapaxy may be performed in conjunction with a galvanocautery prostatectomy. A complete prostatectomy is justifiable if performed early before the individual is broken down in health and secondary complications have supervened. In early operation the results are most satisfactory, recovery rapid, and mortality varying between 5 and 7 per cent. In complete prostatectomy in feeble, elderly patients with long-standing obstruction and secondary complication the prognosis is grave and the mortality ranges between 15 and 18 per cent. If the bladder in these cases happen to be hopelessly disabled, the results obtained by the operation are negative. Cases of this description are only suitable for suprapubic drainage. In 90 per cent. of all cases the gland can readily be removed by means of a median perineal incision. The perineal operation recommended by Bryson is considered the operation of choice. Complete suprapubic prostatectomy is shown to be more dangerous than perineal operation, for obvious reasons. A suprapubic prostatectomy is safer if combined with perineal drainage. Partial suprapubic prostatectomy is indicated in such cases as where a valvelike lobe exists which interferes with urination, or where there is a partial hypertrophy of one of the lobes. A perineal prostatectomy is best suited for those cases where the enlargement of a lateral lobe has a tendency to progress toward the rectum, to obstruct the urethra, or project backward into the bladder. A prostatectomy is always attended with more danger than the Bottini operation, and the convalescence is more prolonged. In suitable cases the latter operation is therefore the one of choice. Orville Horwitz (Medical News, January 23, 1904).

LOBAR AND BRONCHO-PNEUMONIA IN INFANTS AND CHILDREN.

Symptomatology and Diagnosis.—A runabout child when stricken with pneumonia will refuse food, look pale and drowsy, and will sometimes vomit. Nurslings will cry and cough, and nurse with difficulty because of the nasal obstruction; they will also have fever and vomiting. The onset, therefore, is abrupt. In a few hours the physician will notice evidences of toxæmia; the child will be drowsy, chilly, and irritable at first, but in a short time will be flushed and feverish, with a pulse of 140 and respirations one-third as fast. When the pulse-respiration ratio departs from the normal, 1 to 4, and approximates 1 to 3, one should always look for a lesion in the lungs. Dr. O'Dwyer first called the writer's attention to the great practical value of this rule, and his own experience has abundantly confirmed this. Soon there will be diminished respiratory murmur over the affected lung, harsh breathing, bronchial voice and breathing, and bronchial whiff. The cough is so inconstant as to be of little value in primary pneumonia of the pneumococcic type. The symptoms of toxæmia are usually proportionate to the amount of consolidation, although there are exceptions to this rule. It must not be forgotten that pneumonia is an acute infectious disease, with its most prominent and characteristic lesion in the lung; also that there is a characteristic bacteræmia or septicæmia. The primary pneumonias are usually due to the pneumococcus. The stupor is often so deep as to lead to erroneous conclusions. It is not uncommon, too, for the neck of the pneumonia patient to be rather stiff, but both shoul-

ders and arms resist as well. In meningitis, particularly of the tuberculous variety, the face is described as "mask-like." The disturbed pulse-respiration ratio almost surely points to a pulmonary lesion. In nearly all of the cases seen outside of hospital the nurse did not think it worth while to take a baby's respiration-rate. Another confusing, and not uncommon, symptom is a diarrhœa with the discharge of mucous stools. The writer is inclined to think that this is an eliminative process. He thinks that the cerebral and abdominal symptoms are due to the same infection. The most common mistakes in diagnosis are in confounding meningitis and diarrhœa with prostration with pneumonia. Occasionally pneumonia and appendicitis are confounded by very good clinicians, and, at times, it is not easy to differentiate between pneumonia and mastoiditis. W. P. Northrup (Medical Record, December 19, 1903).

Pathology.—The pathology of lobar pneumonia in infancy and childhood presents no striking differences from that of later life. There is regularly a red or gray hepatization of one or more lobes of one or both lungs. While there might be shadings of the color of the exposed surface, the section is usually quite uniform, a characteristic which, taken in connection with the granular appearance, is reasonably distinctive of the lobar type of inflammation. It is more common in children than in adults to see a partial consolidation of one lobe or else a distinctly lobular type. The amount of pleurisy found varies greatly; most frequently there is present only a haziness or a slightly granular appearance of the pleura. Not uncommonly, however, there is a yellowish or greenish plastering over of the pleura. In some cases of lobar pneumonia the infiltration of the lung is so intense and the degeneration so advanced as to give a very granular appearance and a pale-yellow color to the cut surface like that seen in a caseous pneumonia in adults. From time to time small abscesses may be seen in the consolidation of lobar pneumonia, and at times there may be more or less extensive gangrene. In the early stages congestion is marked, and there is much blood in the exudation: later, the blood disappears and the other elements of the exudate increase. The general connective tissue of the lung is swollen. The most important associated lesion is found in the pericardium, the meninges, and the peritoneum. These are due to general infection with the pneumococcus.

Broncho-pneumonia is met with in about 40 per cent. of all the autopsies at the New York Foundling Hospital. In general, three distinct types are recognized, types which represent stages in the development of the process. In all three stages the process is regularly bilateral, and, for the most part, symmetrical. The posterior parts of the lung usually show more extensive consolidation than the anterior. In the first stage, the beginning broncho-pneumonia or capillary bronchitis, there will be found rings of deep congestion, and, on opening the bronchi, the appearances of a bronchitis are present. Microscopical examination will show the smaller bronchi full of an exudation from the walls of the bronchi, and these walls appear swollen and infiltrated with leucocytes. The air-cells immediately about the bronchus are filled with cells exfoliated from the walls, with leucocytes and a very little fibrin. In the second stage areas of consolidation are scattered throughout the lungs, but having between them pulmonary tissue approaching the normal more or less closely. The third stage is that known

as pseudolobar broncho-pneumonia; the previously disseminated areas of consolidation in this stage merge into one another, but there is not present the granular appearance found in lobar pneumonia. Owing to the branching of the bronchi the areas present a more or less stellate arrangement. Frequently the small bronchi break down, giving rise to abscesses. With a broncho-pneumonia involving the greater part of a lobe there is usually some pleurisy. The writer has been impressed with the frequency with which empyema is associated with broncho-pneumonia. This is rather in contrast with the findings in later life.

The bacteriology of lobar pneumonia is well established. In about 95 per cent. the pneumococcus is the causative agent, although it may be associated with other micro-organisms. Recent investigators found general infection of the blood in an increasingly large proportion of cases. The disease should probably be regarded as a general infection with a local lesion. In about 50 per cent. of the cases of broncho-pneumonia the pneumococcus is the infecting agent. The tendency of the present time seems to be to diminish the importance of the local lesion and increase the importance of the general infection and the powers of resistance of the infected individual. David Bovaird, Jr. (Medical Record, December 19, 1903).

Treatment.—The first thing to consider is the individual peculiarity of the little patient; the second consideration always should be the prognosis. In regard to lobar pneumonia, the writer says that this disease has, almost without exception, a favorable prognosis in infants and young children; almost every case will recover without treatment. It is highly important, therefore, that there should be no treatment which will disturb the patient. The child should be kept in a warm bed in a room having a temperature of at least 72° F. The author bases this on the belief that a cold skin means contraction of the cutaneous vessels, and this, in turn, means interference with heat-elimination and increased work thrown upon the heart and increased congestion of the weakened vessels of the diseased lung. If the body-temperature demands attention the effort should be made to secure free dilatation of the cutaneous vessels. The physiologists tell us that about 78 per cent. of the heat-loss of the body is by conduction from the cutaneous vessels, and 10 or 20 per cent. by evaporation from the same surface. About 90 per cent., then, of the heat-loss is by conduction, radiation, and evaporation from the cutaneous surface. If, therefore, contraction of the cutaneous vessels is allowed it will interfere with the escape of heat from the body-surface. Whatever contracts the cutaneous vessels—as, for example, the use of cold—causes the internal temperature to rise. This fact should not be lost sight of. The use of cold to the body-surface not only causes a rise of the internal temperature, but also causes an intense excitement of the nervous system. To unnecessarily excite agitation and resistance on the part of the diseased infant is to interfere very seriously with the recovery of the child. Four-fifths of the heat of the body is produced in the muscles; hence, anything which produces resistance on the part of the child tends to increase the fever. The author doubts very much if a physician who attempts to treat sick children by cold applications could keep the confidence of the best families. The child suffering from pneumonia in private practice should be wrapped in flannel

and should be placed in a warm room, with the crib in a part of the room where there is no possibility of exposure to a draught. If the child is restless, it should be soothed by small doses of Dover's powder, and by this the writer does not mean the unauthorized powder sold by druggists under that name, but the powder made according to the original formula of Dr. Dover: *i.e.*, opium, ipecac, and sulphate of potassium, and not sugar of milk. The original Dover's powder is an excellent diaphoretic; the modern preparation going under that name, and containing sugar of milk in lieu of sulphate of potassium, is sickening, constipating, and worthless. Aconite is strongly indicated under the conditions found in the lungs in the early stage of pneumonia. Another method of increasing diaphoresis is by giving full doses of niter: that is, 20 drops every hour to an infant of one year. This will cause free perspiration, which should be kept up for the first three or four days. It is also important not to urge the child to take much food. Milk should not be offered until the child's thirst has been completely satisfied by water. Great care must be taken to keep the stomach and bowels in proper condition; if there is much abdominal distension in a child with pneumonia the little one will almost surely die. Alcohol should be avoided in the early stages, and should be used with caution in the later stages. Children with pneumonia do not die of cardiac failure, as do adults; the cause of death is respiratory, not cardiac, failure. In the rare cases in which alcohol is required—as, for example, at the crisis—it should be given in fairly large quantities, preferably by the rectum, and with hot water. In bad cases of pneumonia in which there is grave sepsis, oxygen is valuable almost from the beginning; on approaching the crisis it is equal in value to whisky and strychnine. When demanded, it should not be given for a few minutes at a time, but continuously, if need be, day and night. It will often save children who will die if only given alcohol and strychnine. J. E. Winters (Medical Record, December 19, 1903).

MILK FOR INFANTS AND INFANT MORTALITY.

Behring (Therapie der Gegenwart, volume xlv, No. 1) has been continuing his research to discover a practicable means of preserving milk, and describes his numerous experiments and experiences. He has established the fact that formalin will keep milk from souring even in the small proportion of 1 to 4000, and that the most sensitive animals take it without apparently detecting the addition of the drug, and persons are unable to tell the milk thus treated from pure milk. Addition of formalin up to 1 to 500 proved absolutely harmless for all the various animals investigated, whether the milk was ingested *per os* or injected into a vein or under the skin or into the peritoneal cavity. He further states that by a special technique which he has devised and will soon publish he was able to preserve milk so effectually that it could not be detected from fresh milk when delivered at a distance eight days after the milking. The milk thus preserved was derived from his immunized cows, and his method of preservation did not impair in any appreciable manner the immune-bodies contained in the milk. He tabulates the results of tests which showed that addition of 1 to 10,000 formalin kept the milk from souring for six days. Calves fed on this formalinized milk thrived better than the controls, while prevailing diseases were eradicated by this method of feeding.

Not a single case of "Kälbersterben" (calf dying) occurred in one stable in which it had previously been extremely prevalent and invariably fatal. The results observed indicate that formalinized milk is more readily digested than ordinary milk, as it coagulates in delicate flakes. Heating the milk injures the immune bodies, and hence heat sterilization cannot be applied to the milk of his immunized cows. Fresh horse-serum has a destructive action on anthrax virus, which it loses after six hours. Cow-serum does not possess this destructive action on anthrax bacilli nor on streptococci, staphylococci, and certain other bacteria. Reasoning from the fact that young calves are not affected by the colon and lactic-acid bacilli, which they must ingest in considerable numbers, Behring surmised that their serum must have antibacterial action for these two varieties of bacteria. This surmise was confirmed by the results of tests which proved that the serum and the milk of cattle contain isopathic antibodies for these two varieties. Fresh milk contains a powerful antibody against the colon bacillus, but proportion is less than that in the blood-serum, as the latter contains more of the blood-albumin. The same is true in regard to lactic-acid bacilli, but to a lesser extent. He is convinced that the antibacterial action of these antibodies is plus that of the formalin in his preserved milk, which is remarkable, as usually the antibacterial action of chemicals is rather antagonistic. He refers to his previous announcements of the unprotected condition of the alimentary canal of infants and young animals owing to the imperfect development of the mucous lining, and comments on the perils to which we expose infants by depriving them of these powerful antibodies in the milk against the colon and the lactic-acid bacilli, as the antibodies are destroyed by heating the milk. Jensen has recently reported experiments which showed that boiled milk given to newborn calves for their first meal invariably induced a violent diarrhœa similar in every respect to the spontaneous disease known as "Kalberruhr" (calf dysentery). It is immaterial to adults whether they take boiled or unmodified milk, but Behring is convinced that the infant-mortality in our large cities is closely connected with the use of heated milk in which we have destroyed the antibodies so sorely needed by the infant organism. In conclusion, he asserts that he will have accomplished his aim if he can convince families, communities, physicians, and local authorities of the fact that, when mothers' milk is unattainable, the true food for the infant is not heated milk, but pure, unmodified milk from cows absolutely free from the suspicion of tuberculosis. When it is impossible for the infant to obtain the milk direct from the cow, then he is strongly in hope that the new technique of preservation which he outlines here will be found a very important aid in the prevention of infant-mortality. (Journal of the American Medical Association, January 23, 1904.)

MILK FOR INFANTS, CONCERNING THE ACCURACY OF PERCENTAGE MODIFICATION OF.

Milk modifications, under the best of conditions, will often vary 0.2 per cent., occasionally 0.3 per cent., from the prescribed formulæ, with modifications of medium strength. With low modifications, the error will be correspondingly less; and, with high modifications, correspondingly somewhat greater.

Home modifications are, within the limits just mentioned, trustworthy, if

they are made by a clear-headed and careful person, from milks and creams of a chemical composition that is known to be reliable.

If the composition of the milks and creams used is not known, or if one cannot be sure that the modifier is careful and clear-headed, home modifications are likely to vary greatly from the formulæ prescribed.

Laboratory modifications appear from the authors' figures to be satisfactorily accurate; and unless the milks and creams, as well as the person doing the modifying at home, can be fully trusted, laboratory modifications, when available, are much more reliable than home modifications.

Undoubtedly, the most satisfactory method of having milk modifications prepared is to have a thoroughly capable person make them at home, from milk and cream of reliable composition. In this case the whole process can be kept under direct supervision. This means, however, that milks and creams that are constantly watched, as are the certified milks and creams in Philadelphia, must be used; and that a clear-headed mother or trained nurse must do the modifying. To trust the modifying to a readily confused mother, trained nurse, or nursery governess, or to most nursemaids would make the results very doubtful. The writers confess that their analyses, while not lessening their faith in the devotion of mothers and nurses, do make them somewhat doubtful of the accuracy of many of them in making milk mixtures. The analyses of their modifications demonstrate how important it is, in having home modifications made, to have all the small details, and, above all, the amounts of the different ingredients, carefully written out, or filled out on printed blanks, in order to guard, as far as possible, against confusion. Nothing should be left to the modifier's judgment or memory.

The figures given by the authors demonstrate, also, that it is careless practice to order a certain formula for an infant, and to take it for granted that this formula is actually being given to the child. It is, of course, difficult for those in general practice if they have not even the small facilities necessary in doing such work, to determine the fat-content of the milk-mixtures that are actually being given to the infants under their charge. It would, however, be very easy for many such physicians to have this done by an assistant. Those who are especially interested in pædiatric practice can hardly show proper interest in their work, unless they often do this or have it done. Simple centrifugal estimations of the fat are certainly quite sufficient for clinical purposes, as an indication of the accuracy of the mixtures, though an occasional proteid estimation, if one has facilities for it, will add to the effect. The knowledge that this is likely to be done at any time will necessarily have an excellent moral effect upon any modifier who has a tendency to carelessness; and the somewhat general use of such controls would go far toward eliminating any question as to the accuracy of percentage modifications, whether made at home or in a laboratory. At the same time, it would give one constant knowledge as to their accuracy in any individual case. The apparatus required is cheaper than that used for ordinary examinations of the blood; the method requires less time, and it gives good results. It is already occasionally used by some physicians, but is not often employed by any considerable number of them.

Finally, the authors insist upon the fact already repeatedly mentioned: *i.e.*,

that there is a very great advantage, from the chemical standpoint, as well as from the hygienic, in the use of milks and creams that are under constant professional control, and are certified to by members of the profession as being reliable. Such milks are already available in a number of our cities; those interested in pure and reliable milk in some other cities are preparing to institute their use in those cities; and it may well be urged upon the members of the profession elsewhere that they should offer the same protection to their patients. These certified milks and creams have been received with a curious degree of skepticism by many physicians, but they stand the tests put upon them admirably. There are on sale in Philadelphia six certified milks and three certified creams. The writers have made a large series of analyses of these products, and know that, except for occasional slight and inconsequential variations, they do not pass the narrow limits imposed upon them. They are therefore suited, chemically, for milk-mixtures, as are few others in New York, and as no others are known by the profession to be. The records of the veterinarian and of the bacteriologist of the Philadelphia Milk Commission testify as to the care given these milks in their production and sale, and demonstrate their remarkable purity from the hygienic standpoint. The best indication of their condition as they reach the consumer is the number of bacteria that they contain. The limit placed upon them is 10,000 bacteria to the cubic centimeter. They are not allowed to run above this limit; and are, indeed, usually much below it. Several of them regularly and consistently, at all the examinations made, have shown only a small fraction of that number. It should be remembered that most market milks show hundreds of thousands of bacteria to the cubic centimeter, and that, as delivered in large cities, most of them show millions. One of the latest additions to our knowledge concerning this matter is Wall's statement that Gehrmann recently found the average in fifty specimens of Chicago market milk to be over 2,600,000; and only three were below 100,000. Similar figures have been obtained in other large cities. Such figures demonstrate the wretched and dangerous hygienic conditions that attend the production and sale of most market milks; and, at the same time, they show that the strictest care must be used with milks that are not passed if they contain more than 10,000 bacteria to the cubic centimeter. Certified milks are not examined only once or occasionally, but at least once each month that they are sold. No one can rationally object, therefore, that these milks are not what they are intended to be: *i.e.*, of as constant a chemical composition as is possible, and—most important of all—free from dangerous contamination. D. L. Edsall and C. A. Fife (New York Medical Journal and Philadelphia Medical Journal, January 16, 1904).

NEPHRITIS IN INFANCY.

The writer reviews the work of Goulkewitch, who, in a postmortem study of the kidneys of 200 infants, found nephritis in 23 (the primary disease being pneumonia in 11, tuberculosis in 6, and enteritis in 6); of Morse, who recommended the routine examination of infants' urine; Jacobi, who divided the disease in infancy into the acute, subacute, and chronic forms, and considered the cause as either congestive or obstructive; of Holt, and of D. J. Milton Miller, who has devoted particular attention to the study of the influenzal ne-

phritis. He recommends that the urine be examined for albumin in all doubtful cases, as many of the fatal cases of uræmia are frequently unaccompanied by œdema or dropsy. Among the causes of uræmia are mentioned scarlatina, diphtheria, measles, rubella, varicella, vaccinia, malaria, typhoid and cerebro-spinal fevers, amygdalitis, parotiditis and pyæmia, whooping-cough, broncho-pneumonia, and the stasis dependent upon other pulmonary and cardiac affections. The primary form is very rare in infants. While albumin and hyaline casts are frequently present in the urine of infants, yet, after the first week, they should be given the same significance as in later life.

The writer reports four cases, all following pneumonia, which in two cases was a sequel of whooping-cough, in one a sequel of influenza, and in the other a sequel of acute gastro-enteritis.

The first case occurred in a child aged 5 months. At the beginning of the attack there was a temperature of 103° F.; pulse, 125; and some vomiting and diarrhœa, from which recovery to a great extent took place in three or four days, but leaving a cough. Twelve days after the beginning of the first attack the patient was again seized with fever, temperature of 104° F., cough and diarrhœa, and on the following day had two slight convulsions. Nine days later the physical signs of broncho-pneumonia appeared, with a temperature of 104.4° F., respirations 80, and a distinct swelling and puffiness of both feet. After this the temperature and pulse continued high and the urine showed albumin and hyaline and granular casts and pus, the child dying on the thirtieth day after the beginning of the first attack, after having had several severe convulsions, probably uræmic.

The second case was that of a male, 4 months old, and was first seen in the second week of the convulsive stage of whooping-cough, with a temperature of 103.2° F.; pulse 130, and respirations 50. During the course of the disease he had been crying and fretting with spasmodic coughing, followed by vomiting. After four days he developed symptoms of broncho-pneumonia, and the urine was scanty, but showed only a slight trace of albumin and no casts. He apparently improved and had a subnormal temperature for ten or twelve days, when a relapse occurred, with a temperature of 103.2° F. with a return of the symptoms and broncho-pneumonia, with albuminuria and numerous hyaline and granular casts and pus-cells. The patient was markedly anæmic and continued to grow worse until the fifty-third day of the disease, when he died.

The third case was that of a female infant, 7 months old, who was first seen with a temperature of 104° F., a pulse of 150, and marked catarrhal symptoms indicating influenza, with moist râles, but no consolidation. Four days later bronchial breathing developed, and the patient continued in nearly the same state for about a week more, when the broncho-pneumonia symptoms still persisted, the patient was very pale, and passed very little urine. A week later albuminuria was present, but no distinct casts. Convulsions developed in the meantime and the patient died four days later—on the twenty-fifth day of her illness. The autopsy showed areas of consolidation in both lungs posteriorly, congested spleen, enlarged and congested liver, and red and congested kidneys.

The fourth case was in a male infant, aged 4 months, the illness beginning with high fever, diarrhœa, and vomiting, followed by extreme weakness and

emaciation and then improvement for a few days, after which he was taken with a high fever and cough, with albuminuria, pus, and granular casts, followed by convulsions and death.

In conclusion, the author emphasizes: 1. The importance of the examination of the urine in all acute diseases of infancy and especially in the broncho-pneumonias.

2. The importance of marked anæmia as the most pronounced symptom of kidney involvement.

3. That œdema when present is a valuable symptom, but that grave kidney involvement may exist without it.

4. There is almost always a diminution in the renal secretion.

5. The presence of grave nervous phenomena and convulsions. C. C. Biedert (New York Medical Journal and Philadelphia Medical Journal, January 23, 1904).

NEPHRITIS, SURGICAL AID IN.

The work of Harrison, Edebohls, and others has placed this subject in such a favorable light that its earnest consideration is a matter of prime importance.

As in every new line of treatment, various theories have been advanced as to how the relief is afforded or the cure effected, but thus far nothing definite has been determined.

Simple incision and decapsulation have been followed by improvement in every variety of nephritis, and when we view the pathology of the various forms it is impossible at this time to lay down hard-and-fast lines as to technique, or the manner in which the pathological condition is improved.

Harrison concluded that relief of tension, restoring perfect circulation and thereby giving regeneration, was the important factor. Edebohls's opinion was that by anastomosis between the renal and perirenal tissues the faulty circulation was remedied. The recent work of Johnson demonstrated that both these views must be abandoned, the latter observer having found there was but little anastomosis, and, indeed, a rapid formation of a new capsule, usually more dense than the original.

In chronic interstitial nephritis the fibrous connective-tissue formation is distributed throughout the organ, a process occupying years before the case comes to the attention of the physician; so it should be conceded that but little relief of tension could result from decapsulation in this particular form.

In Whitacre's case of suppression of urine, where suspension of function continued for eight days, the relief afforded by decapsulation was prompt and complete. Here the condition seemed due entirely to intracapsular pressure, and in the light of our present knowledge decapsulation was indicated.

It would seem that, in those cases where both kidneys are the seat of the same pathological conditions, simple incision should be practiced on one and decapsulation upon the other, the subsequent history to be obtained by urethral catheterization.

A small list of carefully studied cases along this line, together with a microscopical study of the pathology in those cases dying within the first year after operation, especially when death is the result of other causes than the kidney lesion, would do much to advance the status of surgical intervention.

In the complete decapsulation operation the attention of the experienced surgeon is required, owing to the intimate relation of the kidney, colon, and peritoneum. If it can be shown that simple incision, or a crucial incision over the

posterior of the kidney is sufficient to meet all indications, the operation will be a safe one in the hands of the men of only average surgical experience, thus much enhancing the value of the procedure, as it will then be available to the thousands who are unable to journey to the medical centers. Editorial (Cincinnati Lancet-Clinic, January 23, 1904).

OBSTETRICAL PRACTICE, ONE THOUSAND CASES IN STUDENTS' OUT-PATIENT.

The writer's report of his Students' Out-clinic in Obstetrics at the University College of Medicine, Richmond, Va., presents many points of interest and scientific value. The mortality was low: 5 deaths in 1000 cases, or $^1/_2$ of 1 per cent.: 1 death from postpartum hæmorrhage, 1 from eclampsia, 1 from septic peritonitis supervening upon rupture of a gonorrhœal pus-tube as revealed by autopsy, 1 from shock complicated by late stages of tuberculosis, and 1 from apoplexy induced by eclampsia. The mortality-rate contrasted with clinics older and better known gives this clinic second place in point of low mortality, the others referred to being the Frauen Klinik, at Berlin; Obstetrical Clinic, at Prague; Baudelocque's Clinic, at Paris; and the Society of Lying-in Hospital, at New York City. Considering that most of the deliveries were under unsanitary surroundings, this showing is the more excellent. The aim has been to impress the students with the danger of infection, and, without making any great array of asepticizing paraphernalia, to reduce the system of disinfection to the simplest possible technique. Special care is observed in making vaginal examinations, but the antepartum vaginal douche is not employed. The effort is made to keep the hands and particularly the examining hand, sterile, and both genital and hand disinfection is repeated before each examination. Vaselin is not employed as a lubricant. Reliance is placed on thorough scrubbing of hands and forearms of each attendant, followed by immersion in bichloride, 1 to 1000, not less than five minutes, and in lysol, 1 drachm to the pint.

The very favorable showing is believed to be due in part to the scrupulous care bestowed on the genital tract during the third stage of labor, not only in guarding against the invasion of pathogenic organisms, but also in observing the time for and the manner of delivering the placenta. The author holds that the hasty or precipitate resort to Credé's method is largely responsible for the incomplete delivery of the placenta and membranes and for the sepsis frequently dependent thereon. For this reason the management of this important part of delivery is based upon the cardinal principle that Nature has her own time for separating and expelling the placenta *at full term,* as indicated by a signal easy of recognition, and that any method designed to excite uterine contraction before Nature indicates that the placenta is ready to be cast off must be regarded as not in accord with natural processes. The uniform rule in this clinic is to place one hand over the uterus immediately after the child is born, but no friction is made, nor is any effort exerted to excite uterine contractions so long as the uterus remains firm. The slight rising of the fundus, while firm, is the signal that the uterus is ready to expel the placenta. The lifting up of the uterus may occur before the average "twenty minutes" or it may be delayed. As soon as it is observed by the "sentinel hand" the uterus is grasped firmly with one or both hands and pressed downward in the axis of the superior strait. If, after

waiting three-fourths of an hour, there is still no sign of placental separation, the Credé method is resorted to without further delay. The membranes, instead of being twisted into a rope, as recommended by many, are allowed to trail out, which they will readily do during that normal relaxation which follows uterine contraction. In a general way, all attendants act on the principle that every placenta, *at full term,* has its own time to separate, and that it is better to wait until that time arrives before resorting to artificial stimulation of the uterus. By the rigid observance of this rule it has been a rare occurrence to have even a retained placenta, and no cases of adherent placenta have been met with at all. All students are strictly enjoined to avoid interference with the genital tract after the child is born, and experience has demonstrated that, just in proportion as this rule is regarded, the puerperium is marked by fewer deviations from the normal. John F. Winn (Journal of the American Medical Association, October 3, 1903).

PANCREAS, THE RÔLE OF, IN CARBOHYDRATE METABOLISM.

Within the past few months two papers have appeared in German journals which deserve more than passing consideration owing to their important bearing on the rôle of the pancreas in the carbohydrate metabolism of the body.

In the first, by O. Cohnheim, it has been conclusively shown that, while neither muscle-tissue nor pancreas is individually capable of causing glycolysis, both combined will cause such alterations in added glucose that this is no longer demonstrable by the usual reduction tests. Cohnheim concludes that the glycolysis is referable to the action of a muscle-ferment which in itself is inert, but is activated by a second substance derived from the pancreas in a manner perfectly analogous to the action of enterokinase upon trypsin. The rationale of this arrangement is apparent at once, if we bear in mind that in the liquid muscle-plasma ferment and kinase could scarcely coexist; some mechanism must hence be available by means of which the kinase is furnished according to demand. This function rests in the pancreas. The degree of glycolysis of which the muscle-tissue is capable, on the basis of Cohnheim's experiments, is considerable, and in the case of a grown man would represent a minimum of 200 grams of dextrose.

The second paper, by R. Hirsch, of Hofmeister's laboratory, points out that a relationship exists between the pancreas and the liver which is quite analogous to that demonstrated for the pancreas and muscle-tissue. It is to be noted, however, that the liver itself is capable of altering glucose so that it is no longer demonstrable with the usual tests. The degree of this hepatic glycolysis usually varies between 20 and 30, but may attain the value of 50 per cent. If, however, pancreatic tissue is added to the liver-tissue the glycolysis is much more extensive and occurs with greater rapidity; the loss of glucose may then amount to fully 80 per cent. Hirsch accordingly draws the same conclusion from his experiments as Cohnheim, viz.: that the pancreas most likely furnishes an enzyme (kinase), which activates a glycolytic hepatic enzyme that in itself is inert. The apparently independent glycolysis of the liver he explains by the assumption that the fresh organ, only recently removed from the body, still contains a small amount of the glycolytic kinase, which activates a certain amount of the hepatic ferment.

Further experiments in this direction with animals that have been rendered diabetic by removal of the pancreas are urgently needed. It is interesting to note that in human diabetes several observers have found the liver devoid of all glycolytic activity (Jacoby, Blumenthal, and Feinschmidt).

As regards the fate of the glucose, Hirsch has satisfactorily demonstrated that the organic acids, which are always formed during hepatic autolysis, are not referable to this source, nor was there any evidence to show that the glycolysis was associated with alcoholic fermentation. He was unable to isolate any products of its decomposition. Cohnheim, on the other hand, states that he could demonstrate carbon dioxide.

One notable difference apparently exists between the results of Cohnheim and Hirsch, namely: the relative rapidity with which the glycolysis took place in the pancreas-muscle tissue experiments as compared with the pancreas-liver mixtures. In Cohnheim's experiments the glycolysis occurred principally within the first twenty-four hours, while with Hirsch no change whatever could be demonstrated during this time; the glycolysis here reached its highest point only after eight days. This difference is no doubt partly due to the different technique employed, viz.: Cohnheim's method of complete cellular destruction, on the one hand, which would lead to a complete liberation of the intracellular ferments, and Hirsch's ordinary method of mechanical comminution without material cellular destruction on the other.

The important bearing which both papers have upon the subject of diabetes and the probable rôle which the pancreas plays in the pathology of the disease, suggests itself at once and invites speculation. We forego this temptation, however, in anticipation of further experimental data, which have been promised. Editorial (Medical News, January 16, 1904).

PHARYNGEAL TONSIL, THE.

The pharyngeal tonsil possesses a distinct function or functions. This function is of the nature of a defense against the entrance of bacteria and consists in a certain irrigation of the tonsil surface by a lymph-stream loaded with lymphocytes. This protective function carries with it the inherent qualities of the tonsil to enlarge on the slightest irritation for the affording of further power of defense. This inherent tendency of the tonsil to enlarge is further seen in the frequent recurrence of the tonsil after removal. Strictly speaking, then, in the great majority of cases such enlargements are not a pathological, but a physiological, process. T. J. Harris (American Medicine, January 2, 1904).

PREGNANCY, COMBINED ECTOPIC AND INTRA-UTERINE.

The combination of ectopic with intra-uterine gestation in the same patient is termed compound pregnancy. Cases of this kind recorded in literature are grouped as follows: Class 1. The woman became pregnant while carrying the dead products of an ectopic gestation. Class 2. The ectopic and intra-uterine products of conception were both living at the same time. *(a)* Ectopic conception preceded the uterine—3 cases only. *(b)* Ectopic conception followed the uterine (?). *(c)* Ectopic and uterine conception occurred coincidently—98 cases.

The condition is being recognized more frequently. Prior to 1893 but 56 cases were found, while in the next decade an equal number were recorded.

The common errors in diagnosis have been *(a)* the recognition of the uterine pregnancy and mistaking the ectopic for an inflammatory condition or neoplasm; *(b)* the recognition of ectopic and overlooking the uterine pregnancy. It is incumbent upon teachers and authors to give the subject proper recognition by reason of its actual frequency and perilous course.

Treatment in many particulars is identical with that of simple ectopic. It varies with the duration of the ectopic, the degree of its integrity, and the patient's power to withstand the treatment or the disease. It differs from the treatment of simple ectopic by reason of the third life in question, and the varying exigencies of its existence. To the ordinary dangers of ectopic pregnancy are added the dragging and pressure of the enlarging gravid uterus, and its evacuation prematurely or at term. There is therefore greater reason for appropriate and timely surgical intervention in compound than in simple ectopic pregnancy. As the ectopic fœtus is rarely delivered alive, it should be disregarded when considering proper treatment, unless almost viable, and proper surroundings render delay safe. The greatest safety to the mother and her offspring (uterine) lies in the removal of the ectopic products by abdominal section. A table of 118 cases culled from literature including the report of 1 of his own is submitted by the writer. F. F. Simpson (New York Medical Journal and Philadelphia Medical Journal, January 23, 1904).

PROLAPSED KIDNEY, METHOD OF SUTURING THE.

The essential points in determining success are as follows: The colon must be completely detached from the kidney, so as to obviate subsequent dragging upon it. Reattachment must be prevented. This is accomplished by packing a gauze drain beneath and in front of the kidney and by early evacuation of the bowels. The sustaining sutures must be inserted under the fibrous capsule in a manner to obviate tearing or cutting through the structure when they are tied, and the suture material should be one that is permanent. The suture should not be tied to the muscles, but should be brought out upon the surface of the back. They should not be removed until sufficient time is allowed for firm attachment. The kidney must be restored to its normal position, and should not be attached lower down where it may be compressed by the corsets or other clothing. The detached redundant fatty capsule must not be permitted to come between the kidney and the structures to which it is to adhere. This may occur after closure of the wound, and is another indication for the packing of gauze around the lower pole of the kidney. When both kidneys are operated upon, the patient must be kept strictly on her back during three weeks. When one has been sutured, she should be turned upon the affected side only. The operation is indicated before the patient's health is seriously impaired and before the kidney has become diseased. A vertical incision is made through the skin to the first layer of muscles beginning just below the last rib and extending downward along the outer border of the erector spinæ muscle for three and one-half inches. The latissimus dorsi is separated in the direction of its fibers. The fascia is next divided and the quadratus lumborum exposed. This is drawn inward. The transversalis fascia is next split downward by traction, which avoids wounding the ilio-hypogastric nerve and

vessels. The fatty capsule bulges up into the wound. The kidney can now be located with the finger and delivered. The fatty capsule is opened with scissors and is completely detached from the kidney back to the hilum. The fibrous capsule is not split or detached from the kidney, nor is it scarified. Firm adhesion can invariably be secured if the kidney is held immovably in contact with opposing structures. To accomplish this, silkworm-gut is a *sine qua non*. Two sustaining sutures are inserted upon the posterior aspect of the free border. These penetrate only beneath the fibrous capsule and are so placed that when traction is exercised upon them they will not tear out nor give way. A. H. Goelet (Annals of Surgery, December, 1903).

PSYCHIATRY AND SIDE-CHAIN THEORY.

Alter (Berliner klinische Wochenschrift, November 23, 1903) suggests that Ehrlich's side-chain theory may be made applicable to the study of certain nervous diseases. Ceni has been able to demonstrate in the blood of epileptics bodies which he calls autocytotoxins, and progressive paralysis also affords a promising field for similar investigations. In epilepsy the course of events is particularly suggestive of the phenomena postulated by the side-chain theory. The specific toxin of the disease is formed within the body from sources still unknown and is set free in the blood. Its tendency, like that of tetanus toxin, is to attack cells of the central nervous system, and, having combined with these by means of its haptophore, the toxophore becomes active, the cell protoplasm is attacked and damaged, and an epileptic seizure occurs. The aura represents the incubation period of ordinary infections and corresponds to the time required for the union of haptophore and receptor. During the interval between attacks the haptins are combining with the haptophores and neutralizing the toxin until the latter predominates, when the cells are attacked and another seizure occurs. A somewhat similar line of reasoning may be applied to the phenomena of general paralysis, though the details are still unknown. (Medical Record, December 19, 1903.)

RADIO-ACTIVITY OF THE ANIMATE AS WELL AS THE INANIMATE.

Almost every day sees discovery added to discovery, and phenomena are disclosed which threaten to render obsolete the use of the word occult. Facts are rapidly being presented before time has been given to formulate a theory which will explain them and the faculty of imagination was never so active in attempting to break down the barrier between the psychical and the tangible. We no sooner recover from the excitement of the discovery of the *x*-rays and the remarkable phenomena related to them than the atom is announced to be, after all, not the finitely small, but a tiny system swarming with electrons. The discovery of radium and its remarkable properties comes, so to speak, in the nick of time to clinch the argument, and for the first time scientific men are able to say: "We have actually touched the borderland where matter and force seem to merge into each other." Barely a moment is left to ponder over this stupendous revelation before it is announced that the transmutation of one element into another has been ascertained for certain to take place. In the meantime investigation apparently in an entirely different field has brought some French chemists to state positively that an imprint of the dead Christ, revealing the manner of his death and passion, is

apparent upon the Holy Shroud of Turin. These explanations appeared to be crude and referred to the action of emanations from the dead body upon the embalming materials of the sheet. The outline of the dead Christ upon the shroud was regarded as a "vaporographic print." In these days of the announcement of new active rays, emanations, vapors, etheric vibrations, electrons, or whatever we may choose to call them, the explanation may be different and more exact. In several communications to the Académie des Sciences M. Blondlot, for example, has lately described what appears to be yet a new grouping of active rays for which he suggests the designation "n" rays. These rays have the property of augmenting the brightness of a phosphorescent substance such as platinocyanide of barium the luminosity of which has been appropriately adjusted by exposure to a salt of radium. They are able to traverse metals and other opaque bodies and appear to be given off by most sources of light and heat, including the sun. Further, they are able to be brought to a focus by means of a lens of glass or by one consisting of an aluminum shell containing a solution of salt. While studying Blondlot's rays M. Aug. Charpentier observed that emanations of a similar character were emitted by the human body and that the effect produced upon a sensitive screen placed at a little distance was proportional to the physiological activity of the part, being greatest in the case of muscle and nerve. By using a small screen and noting the variation in luminosity which it exhibited he found it possible to map out the area of the heart and to trace the course of nerves beneath the skin. That the phenomena were not due to heat simply was shown by interposing screens of aluminum or glass, which did not affect the result, nor could the rays be supposed to have been previously absorbed from some external source, since the manifestations were obtainable equally well after the part of the body under observation had been kept in darkness for nine hours. As yet it does not appear that this method of investigation has more than a theoretical value, but the same might have been said of the early stages of almost any application of scientific methods. Editorial (Lancet, January 9, 1904).

RECTAL DISEASES, STERILE-WATER ANÆSTHESIA IN THE OFFICE TREATMENT OF.

When an incision is to be made through the skin and subcutaneous structures for fistula, colostomy, exploratory laparotomy, abdominal fixation of the sigmoid, excision of lipomata, dermoids, etc., or the removal of foreign bodies from beneath the integument, the procedure is as follows: A fold of the skin at one extremity of the line of incision is caught up between the thumb and forefinger and compressed for a few seconds, which diminishes, and often prevents, the momentary pain caused by the first injections. The needle is then quickly introduced *between* the layers of the skin and a few drops of water are slowly injected. They should produce a small, localized distension not unlike a blister, and as soon as this appears anæsthesia of the skin should instantly occur at this point. The needle is then inserted slowly farther and farther along the line of the cut to be made, and the water is gradually injected as before, care being taken not to go entirely through the skin. When the syringe is emptied it is refilled, the needle is reintroduced within the anæsthetized area, and the injections are

repeated as before, until the distension extends the entire length of the line of incision. The needle is then plunged through this distended line and subcutaneous injections are rapidly made until a firm, whitish, ridge-like swelling, about as wide and thick as the index finger, is produced. These deep injections may cause a temporary discomfort due to the rapid distension of the subcutaneous tissues. If the procedure has been properly carried out, the skin and underlying tissues can now be incised without pain in almost every instance.

For external thrombotic hæmorrhoids it is necessary to make the injection of sterile water only between the layers of the skin overlying the clot to be removed.

In excising external cutaneous hæmorrhoids both the skin and tumors should be distended tightly, in order to obtain effective anæsthesia.

Large internal venous or capillary hæmorrhoids can be anæsthetized within thirty seconds by injecting directly into the center of each tumor sufficient sterile water to distend it tightly and cause it to turn white. They can then be removed painlessly by the ligature, clamp and cautery, or excision method.

Fissure, fistulæ, ulceration, epithelioma, stricture, and congenital malformations about the anus, constipation, fæcal impaction, or other affection which requires operation to increase the lumen of the anal outlet or which necessitates incision or division of the sphincter muscle, may be operated on under water anæsthesia. For these operations the skin and subcutaneous structures up to the anal margin are distended, as previously described, and finally injections are made into the mucosa, submucosa, the external and, if necessary, the internal sphincter muscle, until a sufficient degree of pressure is exerted upon the nerve-endings to overcome sensation. The injection should be made slowly, as rapid distension of this sensitive region may produce considerable discomfort.

Follicular and marginal abscesses may be opened with but slight pain by injecting the water between the layers of the skin immediately over the abscess, subcutaneous distension being unnecessary. Ischio-rectal abscesses, if small, may be incised in the same way, but the writer does not advocate this method of anæsthetization for deep ischio-rectal, circumrectal, or pelvi-rectal abscesses where extensive cutting and curetting are essential.

Prolapsus ani of moderate degree may be almost painlessly operated on by first distending with the sterile water the areas of mucous membrane and muscular structures which are to be removed by the ligature or clamp and cautery, or by distending the lines of incision when a segment of the bowel is to be excised.

The advantages of water anæsthesia are the following:—

1. Effective local anæsthesia is so quickly and easily obtained by this method that in a majority of rectal cases there is no necessity of requiring a patient to submit to the annoyance and expense of entering a hospital and undergoing general anæsthesia. For this reason it appeals strongly to the better class of patients.

2. The anæsthesia instantly follows the injection of water sufficient to distend tightly the tissues to be incised or removed. This enables the operator to work quickly, and, as the patient is not confined to the hospital during the after-treatment, but can come to the office to be dressed, it economizes the surgeon's time and labor.

3. No annoying or dangerous complications have been observed during or fol-

lowing the injection of the amount of water necessary to produce anæsthesia.

4. In the writer's experience the pain and bleeding following this method of local anæsthetization have been less than when medicinal local anæsthetics have been used.

5. It eliminates the danger to life from heart, lung, and kidney complications, which are always to be feared during and following the administration of ether or chloroform, and it avoids the increased pain and hæmorrhage due to straining and vomiting after general anæsthesia.

6. The only requirements are a hypodermic syringe, a suitable needle, and boiled water, and these are usually at hand.

7. The radical treatment of hæmorrhoids can be so easily carried out under this method in the physician's office, with so little danger and inconvenience to the patient, that it should relegate to oblivion the much-vaunted injection treatment, which is so dangerous and uncertain.

This method of anæsthetization is not practicable, however, for excision of the coccyx, or for extensive operations, such as are required for the removal of large tumors by excision or resection of the bowel, or for the relief of complete prolapsus recti; complex, horseshoe, recto-vesical, recto-urethral, and recto-vaginal fistulæ; very extensive abscesses and strictures; congenital malformations, or other affections located in the upper rectum. Neither is it applicable for opening the abdomen in some cases where there is a thick layer of fat and the tissues are so loose and flabby that a proper degree of distension is impossible.

The anæsthetization and anæmia of the part occur almost instantly on complete distension of the tissues, and from this it would seem that they are apparently produced by the pressure upon the nerves and their endings and upon the blood-vessels. If the distension is too quickly induced, however, by too rapidly injecting the water, it may cause considerable temporary discomfort, amounting to actual pain in extremely sensitive persons.

The after-pain following operations under this method of anæsthesia is much less than when eucaine, cocaine, and similar drugs are used, as the latter apparently induce a state of nervous excitability in the patient; and, moreover, after their anæsthetic effect has worn off there is increased local irritability of the nerves. There is also less danger of postoperative hæmorrhage after this method, due apparently to the fact that the drugs cause a relaxation of the small vessel-walls, which frequently persists for a considerable time and permits oozing and sometimes profuse bleeding.

Recently much has been written and said concerning operations performed on other parts of the body under local anæsthesia produced by very weak solutions of cocaine, eucaine, and similar agents, but in the writer's experience the addition of these drugs has been found unnecessary, and, although the quantity used may be small, they still possess the disadvantage of sometimes producing toxic symptoms and other complications.

The writer states that, while anæsthesia by the injection of sterile water is not effective or cannot be applied in all major operations, he has employed it to the exclusion of general and local medicinal anæsthetics in nearly all his rectal operations (hæmorrhoids, fistulæ, and fissures, etc.), and with such gratifying results that he would heartily recommend its thorough trial by other surgeons. S. G. Gant (New York Med-

ical Journal and Philadelphia Medical Journal, January 23, 1904).

SARCOMA OF THE FEMUR, AMPUTATION AT THE HIP-JOINT FOR.

Sarcoma of the femur is a malady so dangerous to life, so prone to early metastasis, that only the most radical operation should be performed, and that at the earliest possible moment. Hip-joint amputation is to be preferred to resection or to amputation through the shaft. Recurrence being the almost invariable rule after all methods of operation, a thorough course of mixed toxin treatment after operation, as a prophylactic, offers the best hope of permanent cure. W. B. Coley (American Medicine, January 9, 1904).

SHOCK, TEMPERATURE IN.

Shock must not be considered as due to the lowering or exhaustion of one bodily function, but as a composite condition embracing an interference with the normal height of the blood-pressure with the respiratory act and with a marked fall in the body-temperature. That there is a relationship between fall in body-temperature and shock is evident by considering: *(a)* That in one series the fall in temperature was the sole cause of shock. *(b)* That by continuous bath the temperature fell but one degree. The respirations increased, instead of diminishing, and the fall in blood-pressure was greatly lessened. *(c)* That by raising the body temperature, previously lowered in shock, the respiratory rate was increased and the blood-pressure raised. Of the three factors concerned, the temperature commands the first place by its powers of production, limitation, and amelioration of a composite condition—shock. G. C. Kinnaman (Annals of Surgery, December, 1903).

STOMACH, CANCER OF THE.

The association of a persistent absence of free HCl, the presence of lactic acid, long bacilli, yeast, and retained food, with a tumor and cachexia, in the vast majority of cases, of course, means carcinoma. Even if a tumor is not detected, one is justified in making this diagnosis. The positive diagnosis of the case in its early stages is absolutely impossible. In an obscure digestive case which repeatedly shows an absence of free HCl, and in which pernicious anæmia has been excluded by careful blood-examination, if the patient continues to grow worse under good treatment, an exploratory laparotomy should be urged by all means, for diagnostic and, if indicated, for therapeutic purposes.

It is natural to ask: of what value are the much vaunted laboratory findings in the diagnosis of cancer of the stomach? It has been noted that all of the so-called classical laboratory evidence may be detected in other diseases. For instance, it is possible, in a case of chronic atrophic gastritis with dilatation, to find them all except the bits of carcinomatous tissue: *i.e.*, absence of free HCl and the ferments, and the presence of lactic acid, Oppler-Boas bacilli, yeasts, and sarcina. Furthermore, we have seen that a small percentage of undoubted malignant cases furnish a fair amount of free hydrochloric acid. Our attention has also been drawn to the fact that, if we were depending on the absence of free HCl in the stomach-contents for a diagnosis of cancer of the stomach, many cases of pernicious anæmia would be diagnosed as such.

The lesson to be learned, concludes the writer, is that laboratory diagnosis, if incomplete and too much emphasized, may lead to unfortunate conclusions. It is the physician who takes a broad view

of his cases from the standpoint of a careful history and physical examination and experience, combined with the assistance of laboratory findings, who will make the fewest errors in diagnosis. The younger medical generation is prone to emphasize too much the importance of laboratory work, while the older is likely to minimize its importance. J. R. Arneill (American Medicine, January 16, 1904).

STOMACH SURGERY.

Gastro-enterostomy can be applied to all kinds and conditions of stenosis of the pyloric end of the stomach. It is a preferable operation to that of resection of the stomach, in many cases, the immediate mortality being less and the possibility of the extension of life being quite as great, with as much comfort. Next to gastro-enterostomy, the writer believes gastrectomy to be the most reasonable and satisfactory operation; yet this operation will necessarily be limited to but few cases. In doing it great attention should be paid to removal of the lymphatic glands, as in this rests much of the permanent success of the operation and nonreturn of the malignant growth. Albert Vanderveer (New York Medical Journal and Philadelphia Medical Journal, January 2, 1904).

TRAUMATIC NEUROSES.

Nervous symptoms similar to those met with in traumatic hysteroneurasthenia may be noted as the result of sudden and intense mental strain, unassociated with traumatism. Clinical experience and a few isolated postmortem findings indicate that microscopical lesions of the brain and cord may result from traumatism without external evidence of violence. Although we know these minute findings are often present, our knowledge of their effect is as yet insufficient to enable us to differentiate between cases in which they do or do not exist, and their possible presence does not necessarily influence our prognosis. Hysteria must be looked on as a true disease, which may be brought on by traumatism, and which may bring more trouble into a home than a broken limb or a sprained back. F. A. Ely (Medical Age, December 25, 1903).

TUBERCULOSIS OF THE TONSILS AND THE TONSILS AS A PORTAL OF TUBERCULAR INFECTION.

The tonsil may be the seat of primary tubercular infection, though rarely, as compared to the pyogenic forms of infection. The tubercular tissue is found in the form of giant cells and tubercular nodules. Cheesy degeneration in the tonsil is not common; if the tubercle bacilli are abundant, it is exceptional. Tubercular tonsillar ulcers are rare. As a rule, the lymph-nodes leading from the tonsil are affected. Some of these tonsillar infections have been preceded by a simple catarrhal or diphtheritic inflammation of the organ. Tonsillar tuberculosis may be the source of a general tuberculosis of the body. As far as the cervical lymph-nodes are concerned, when found the seat of isolated tubercular infection of a primary nature, it can be justly claimed that such infection has proceeded from the tonsil. Henry Koplik (American Journal of the Medical Sciences, November, 1903).

TUBERCULOSIS OF THE TONSILS IN CHILDREN.

Tuberculosis of the tonsils, especially in cases with tubercle elsewhere, is fairly common, though the disease is usually latent. Tonsil tuberculosis may be primary, and, indeed, the only seat of the

disease in the system, though this is rarely the case. The usual method of infection is by the blood-stream in children from an older focus elsewhere; it also may occur by the sputum in children. When the tonsils are tuberculous the corresponding cervical glands become affected, and sometimes where it is probable that the infection entered through the tonsils, they are quite healthy, but the adjacent cervical glands were tuberculous. L. Kingsford (Lancet, January 9, 1904).

TYPHOID FEVER.

This disease is not a local intestinal disease, though the majority of the germs are probably in the intestinal tract. The intestinal lesions, however, are only a part of the general systemic process. The disorder is a bacteræmia. The lesson to be drawn from this fact is that the old precautions against the spread of typhoid from water ought not to be neglected, as this is probably the most frequent way it is acquired, and any changed notion as to the pathogenesis which results in relaxation of prophylaxis is dangerous. Still, it indicates that we should not depend too much on intestinal antisepsis for the general condition. The time to treat typhoid by intestinal remedies is before the ordinary symptoms appear, but this is impossible because we cannot recognize the disease at this stage. Typhoid fever may occur without intestinal lesions, which would be impossible according to older views, and this should teach us to use great care in postmortem decisions and to employ bacteriological examination before excluding typhoid. Certain cases closely resembling typhoid are now known to be due to closely related micro-organisms, called paratyphoid germs, and they seem to run a shorter and milder course than the genuine disease. Possibly some of the so-called abortive typhoids are of this class.

Many of the complications of typhoid fever are better understood. Some may be due to secondary or mixed infection, but some others are clearly metastatic localizations of organisms brought by the blood; small numbers of germs or unfavorable local conditions may induce no appreciable symptomatic change, while large numbers and favorable conditions may make a focus of inflammation or suppuration, as the typhoid bacillus is certainly a pyogenic organism. This explains the periosteal inflammation so often met with; also parotitis, thyroiditis, mastitis, meningitis, encephalitis, otitis, orchitis, and prostatitis that may be due to the typhoid bacillus, as well as abscess of the liver, kidney, and spleen, and out-of-the-way inflammations, such as of Bartholin's glands, the tear-duct, and ovarian cyst. The lung, pleura, and pericardium may be involved and there may be a mixed infection with other germs. There are two common complications that should be mentioned. They are typhoid infection of the gall-bladder and the urinary bladder. The first is almost universal, but in most cases produces no symptoms. In other cases true cholecystitis occurs and pus may form which demands surgical interference. A knowledge of recent typhoid, therefore, may be of value in cases where symptoms of gall-stones appear. Typhoid bacilluria is present in about one-fourth of all the cases, and usually symptomless, but the danger of infection in these cases renders them of great importance. Therapy is here efficient. Urotropin promptly rids the urine of typhoid bacilli, and it is not a bad plan to give it for a couple of days,

as it is in typhoid convalescence that typhoid bacilluria usually appears.

The blood-examinations are of great help in diagnosis, and the Gruber-Pfeiffer agglutination reaction, commonly called the Widal test, hardly requires mention, but failure to obtain it does not exclude typhoid, and this is the commonest error. There is another aid to diagnosis which the writer thinks is promising, namely: examination of the blood for typhoid germs, the making of cultural experiments, and the surprising results that follow this method. He thinks this is the surest way of making an early and positive diagnosis.

The importance of prophylaxis as regards drinking-water is not yet realized by the public, but this is not the only method of infection; food contaminated by flies, milk, oysters, etc., are possible carriers of the germs and the physician must carefully watch the proper disposal of excreta from these cases, including the sputum, as occasionally it contains typhoid germs from typhoid bronchitis, laryngitis, etc. A specific for typhoid is yet wanting. There are fewer attempts now at laying down courses of treatment, whereas a proper diet, hydrotherapy, care as to the bowels, symptomatic remedies employed when necessary, and watching for complications is a rational method. Some day a specific will be given us. We shall then be able to do for typhoid fever what we now do for diphtheria and malaria. In the meantime we must not overdo skepticism by becoming nihilists, but give whatever is necessary and harmless. J. B. Herrick (Wisconsin Med. Jour., Dec., 1903).

TYPHOID FEVER, SERUM-TREATMENT OF.

The writer tried the antityphoid serum of Jez and Tavel, of the Berne Board of Health, given orally in some instances and hypodermically in others, and concludes that in most cases the disease does not seem to have been materially shortened. A fall of temperature usually follows the injections, and the general condition of the patients seems to be improved. The writer's experience is too limited to warrant absolute statements, but, so far as it goes, it tends to show that the use of the serum is harmless and that it is deserving of further trial. Max Einhorn (Medical Record, January 16, 1904).

VALVULAR HEART DISEASE AND TABES.

Disease of some part of the circulatory system is present in nearly all cases of advanced tabes. Valvular heart disease occurs in a large percentage of the cases. The intimate relationship existing between syphilis and tabes and the pronounced circulatory changes induced by the former make it reasonable to regard syphilis as the cause of the large percentage of cases of valvular heart disease which we find associated with tabes. B. F. Stahl (American Medicine, November 14, 1903).

VERATRUM VIRIDE IN SURGICAL AND OBSTETRICAL PRACTICE.

The physiological action of veratrum has been carefully studied by Dr. H. C. Wood, who says that "it is a cardiac and spinal depressant." Veratrum slows the pulse, but the author does not believe that it lessens the force of the beat, when used medicinally, except it produces nausea. It stimulates the liver, kidneys, skin, and salivary glands, and it lowers temperature and relieves inflammatory pain by its effect. These properties make it valuable in the treatment of localized peritonitis. In appendicitis the appendix should, if possible, be re-

moved during the first twenty-four hours. When this cannot be done, the Ochsner treatment should be given, supplemented by the hypodermic administration of veratrum.

Acute salpingitis is usually treated by hot and cold local applications to influence the circulation. These are valuable, but the circulation can be more profoundly affected with veratrum, and it is therefore more valuable. Local treatment can, however, be used at the same time the veratrum is, with advantage.

In the treatment of postoperative peritonitis free purgation is of the greatest importance, and should never be neglected. But, in some cases, after the bowels have been thoroughly evacuated, the exceedingly rapid action of the heart indicates that that organ will exhaust itself before convalescence can be established. In this condition there is no drug equal to veratrum. It is superior to strychnine or digitalis, because, while they may stimulate the heart to act for a time with renewed vigor, it makes the work of the heart easier, and gives it a chance to rest between beats.

Although veratrum has been used for thirty years in the treatment of eclampsia by a considerable number of practitioners without a fatality, it is acknowledged by everyone who has given it a thorough trial to be superior to chloroform, morphine, or any other drug in general use. Obstetrical text-books almost without exception fail to recommend it with any enthusiasm. C. L. Bonifield (New York Medical Journal and Philadelphia Medical Journal, January 23, 1904).

Books and Monographs Received.

The editor begs to acknowledge, with thanks, the receipt of the following books and monographs:—

"Krankheiten und Ehe. Darstellung der Bezeihungen zwischen Gesundheits-Storungen und Ehegemeinschaft." Rebman Company, New York. 1904.——Contributors to the Medical Brief whose Portraits have Appeared in 1903.——Are We to Have a United Medical Profession? By Charles S. Mack, La Porte, Ind. 1904.——Peripheral Neuritis. A Clinico-therapeutic Résumé. By W. B. Pritchard, New York. 1903.——One Thousand Cases in Students' Outdoor Obstetrical Practice. By J. F. Winn, Richmond, Va. 1903.——The Finsen Light and Roentgen Rays in the Treatment of Diseases of the Skin. By J. F. Schamberg, Philadelphia. 1903.——Wax Models—Their Preparation and Uses. By J. F. Schamberg and J. F. Willis, Philadelphia. 1901.——Secondary Eruptions in Small-pox. By J. F. Schamberg, Philadelphia. 1903.——A Clinical Lecture upon the Treatment of Gonorrhœa. By H. M. Christian, Philadelphia. 1903.——The Window Resection Operation for Correction of Deflections of the Nasal Septum. By O. T. Freer, Chicago, Ill. 1903.——The Evils of Eponyms. By G. L. Richards, Fall River, Mass. 1903.——Hygiene of Young Girls. By J. H. Carstens, Detroit, Mich. 1903.——Obstipation: Its Causes, Effects, and Treatment. By J. L. Jelks, Memphis, Tenn. 1903.——General Surgical Anæsthesia. By E. J. Mellish, El Paso, Texas, 1903.——The Management of Exacerbations in the Course of Pulmonary Tuberculosis. By J. F. Russell, New York. 1903.——Wages of Farm Labor in the United States. By J. H. Blodgett, United States Department of Agriculture, Washington, D. C. 1903.——Marketing Live Stock. By Prof. C. S. Plumb, United States Department of Agriculture, Washington, D. C. 1903.——Meat on the Farm: Butchering, Curing, and Keeping. By Andrew Boss, United States Department of Agriculture, Washington, D. C. 1903.——Indian Corn in Argentina: Production and Export. By F. W. Bicknell, United States Department of Agriculture, Washington, D. C. 1903.

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THE TREATMENT OF PNEUMONIA.

HEALTH reports from various parts of the country, especially from Chicago, indicate that pneumonia is continuing its ravages. Articles on the treatment of this disease are therefore in order. Two papers of practical value have recently been published in this connection, one by Dr. F. P. Henry, of Philadelphia,[1] which is fully abstracted on page 106; the other by Dr. H. L. Elsner, of Syracuse.[2]

[1] Medical Chronicle, March, 1904.

[2] New York Medical Journal and Philadelphia Medical Journal, January 2, 1904.

The main feature of Dr. Henry's article is the use of hypodermoclysis. In the pneumonia in the young and vigorous he has not been in the habit of employing hypodermoclysis. Even in this class of cases—the only exception—he is now inclined to think that it should be used. "Besides its positive benefits, hypodermoclysis has the negative merit of being a perfectly safe and harmless procedure. . . . It dilutes toxins and favors their elimination; it preserves the alkalinity of the blood, which is one of the most important properties of the vital fluid, and it does so by supplying a defective substance—sodium chloride; and, finally, it tends to prevent the formation of heart-clot"—a frequent cause of death, as is well known. Henry has been convinced of its efficiency through practical experience, and advocates its use in every case. The technique is given on page 107 of this journal.

Dr. Elsner reviews his experience in those cases which he says "stagger the therapeutist"; *i.e.*, those "in which the toxæmia is overwhelming and the heart-muscle often seems to suffer out of all proportion to the lung-tissue involved." He rightly emphasizes the need of a radical departure from the empirical practices of the past. "In the treatment of this form of toxæmia," he writes, "the heart is not the only organ to consider; the condition of the vessels, particularly the arteries, must guide the therapeutist as well. Sphygmographic tracings, presented by Riegel, have demonstrated that most infections are associated with reduced arterial tension. Rosenbach has emphasized the importance of the vasomotors in infectious endocarditis, experimentally produced, and Bouchard proved, at the Tenth International Congress, the malignant influence of bacterial poisoning on the vasodilating centers. Romberg, after a series of painstaking experiments, associated these positive facts with clinical data, and, as a result, we may with safety conclude that the treatment of circulatory failure in pneumonia has been placed upon a scientific basis. Experimenting with the *Bacillus pyocyaneus* and the pneumococcus of Fraenkel, for the purpose of determining the relative importance of the heart and the vasomotor system in the production of circulatory failure in these infections, he reached the conclusion that the circulatory symptoms, which we had considered due entirely to cardiac weakness, were, in fact, intimately associated with demonstrable changes in the vasomotors." The author then quotes a literal translation of Romberg's concluding sentence: "We must consider with the heart-weakness the weakness of the vasomotors, and with the cardiac paralysis that of the vasomotors also."

Elsner, in accord with the best teachings of modern science, strongly condemns the use of antipyretics except cold. He warns against a growing evil: the indiscriminate use of nitroglycerin; it paralyzes, he thinks, the vasomotors; and, with Brunton, he believes that the blood under its influence "loses its power of conveying and absorbing oxygen." He also refers to Van Santvoord's convincing tracings proving the baneful effects of nitroglycerin. So-called "cardiac tablets" are as pernicious. Veratrum viride he deems dangerous—and rightly so. "Too many have been misguided and lives have been sacrificed because of the *persistent* use of the cardiac depressant." Personally, I have never found it of use except during the early part of the first stage, and that only in young, vigorous, and plethoric subjects, to reduce the dyspnœa.

Even if creasote carbonate be used as a general remedy to overcome the toxæmia, Elsner considers the "secret of success in threatening cases" to be the use of "such drugs as restore and sustain the heart strength and arterial tone." For this purpose, strychnine, digitalis (used hypodermically), and suprarenal extract, or adrenalin, its active principle, are recommended. The latter "may be used to assist strychnine. When the vasomotor center is exhausted and blood-pressure study proves the inefficiency of strychnine, adrenalin may still be administered, and, in some cases which seem unpromising, when combined with the method of stimulation about to be suggested, we may carry the patient beyond the critical period to a safe recovery." The method of stimulation to which he refers is described as follows:—

"The profession has long since learned the value of the diffusible stimulants. Unfortunately, their effect is evanescent; hence my plan of treatment includes the administration of these at very short intervals during the continuance of cardiac asthenia. The stimulating effect must be continuous during the critical period. The remedy must be administered before the preceding dose has lost its effect. In no other way can we accomplish the desired result.

"During the past I have treated this condition by administering every fifteen minutes fifteen drops each of the compound spirit of ether, aromatic spirit of ammonia, the compound spirit of lavender, and the tincture of valerian. This is kept up day and night until the pulse shows improved tone and the heart-action is decidedly better.

"The valerian is added because of its quieting effect when administered in these small doses with the diffusible stimulants. Occasionally we meet patients who are unable to retain the mixture when it contains valerian; hence we have been forced to omit it and to substitute either pure whisky or brandy in corresponding doses. If the compound spirit of ether is distasteful it has been omitted, and the dose of the ammonia and lavender has been doubled. The frequent administration of the compound has not seemed to annoy the patients, for, as a rule, they are not awake longer than is necessary to swallow the remedy. I have still further insisted upon the internal administration, every two, three, or four hours, according to the urgency of the symptoms, of 0.015-gram ($^1/_4$ grain) doses of sparteine sulphate, with from 0.24 to 0.36 gram (4 to 6 grains) of caffeine. Both of these drugs must be administered in larger doses than are usually prescribed if desirable results are to be obtained. They affect favorably the weakness of the right heart.

"Finally, the alcoholic stimulant upon which I depend is Tokay wine; I know of no stimulant with which I have accomplished so much, and which, in my hands, has saved so many patients, as this Hungarian wine. This is administered in tablespoonful doses every half-hour, and is given with the etheral stimulant when due.

"Occasionally it is necessary to use high rectal injections of coffee and whisky, and hypodermic injections of ether, sterilized oil, and camphor during periods of collapse, with subcutaneous or intravenous injections of saline solution according to the method recommended by Henry."

His results have been gratifying, and abundant clinical proof would have been

furnished had time permitted. In his closing remarks he emphasizes the fact that it will always be rational to follow the teaching of Wunderlich and Liebermeister "that the temperature requires less consideration than does the pulse."

But it might be well to mention that Dr. Elsner's sheet-anchor is an adrenal extractive, and that last year[3] I called attention to the fact that the adrenal secretion was the heart's main prop; that it reaches the cavities of this organ in its normal state with the blood of the inferior vena cava, and that after being converted into adrenoxin in the lungs it penetrates as such the walls of the heart by way of the coronaries.

C. E. de M. Sajous.

Cyclopædia of Current Literature.

ALBUMINURIA, CYCLICAL.

The writer claims that it is necessary to distinguish more closely than heretofore between cases of orthotic albuminuria in which there are to be found occasionally a few structural elements in the sediment and those in which they are absent, even after repeated examinations. The former class he considers true nephritis. Most observers agree that the disease is very apt to follow acute infectious diseases or sometimes an acute nephritis. The author's material comprised fourteen cases in which he made careful and repeated urinary examinations for several years. These were grouped in two classes: In one the orthotic albuminuria developed after a mild or severe acute nephritis, which, in spite of appropriate treatment, never was cured. Here the formed elements gradually disappeared, but the periodical albuminuria remained. But even in the other set of cases a previous infectious disease, most frequently scarlet fever, seemed to act as a causative factor. Another circumstance which showed an apparent connection between the two conditions was the fact that the children who had presented a cyclical albuminuria at some time readily developed an albuminuria, sometimes with casts, after comparatively slight infections, such as an angina. The author has found, moreover, that most of these patients present symptoms which clinically bear a close resemblance to nephritis. He believes that this form of albuminuria is probably due to circulatory disturbances, to the action of toxins, or to the irritation produced by metabolic products which result from unusual muscular exertions. These act on a kidney impaired in its functionating powers by anatomical changes brought on by infectious processes, and result in an occasional excretion of albumin. The seat of this lesion is in the outer epithelial layers of the glomeruli.

The author's views as to treatment are as follows: Dietetic measures in themselves are insufficient; nevertheless he would institute at the beginning of the treatment a form of rest cure and also forbid all articles of diet which might produce renal irritation. The patients are restricted to an exclusive and vegetable diet for a considerable period. Only after the urine has been free from albumin for a period of several weeks

[3] "Internal Secretions and the Principles of Medicine," volume i.

were the patients gradually restored to an albuminous diet. Efforts at prophylaxis by giving a diet without fluids were unsuccessful. Aside from the discomfort produced, it was found that the small quantities of concentrated urine invariably contained more or less albumin. Energetic diaphoresis also failed. It seemed that the most favorable forms of treatment consisted of diuretic measures, and good results were noted from the administration of the various alkaline mineral waters. This seems to confirm the supposition that a nephritic process is probably the cause of the trouble. The writer sums up his experience in the treatment of this class of cases as follows: The kidneys must become accustomed to the demands made upon them by the muscular system, and this can only be accomplished by a graduated system of diet and exercise. Too much of the latter he has found to be harmful, and constant observation for prolonged periods should be the rule. Hauser (Berliner klinische Wochenschrift, December 14, 1903).

ALBUMINURIA, PHYSIOLOGICAL.

Albuminuria may occur as a transitory symptom in persons who, except for this symptom, may be judged to be perfectly healthy, for they appear to be so at the time and remain so. But it may also occur in persons who, though they appear healthy at the time, develop signs of disease subsequently. It is difficult to distinguish at a given time between those who will remain well and those who will not. It is difficult to exclude with certainty many of the pathological causes to which the albumin might be due. Though there may be no proof that these causes are present, there is equally no proof that they are absent, and in some cases the result shows that they were not absent. Speaking generally, the larger the amount of albumin in the urine and the longer it persists, the greater the probability of some permanent disease. Continued observation of these cases shows that the so-called physiological albuminuria does very appreciably increase the risk of life, and that this risk grows rapidly with every year of age after thirty years. From the foregoing propositions the general conclusion may be drawn that functional albuminuria is never, strictly speaking, physiological at all, but that it is, on the contrary, always pathological, though not necessarily renal. S. West (Lancet, January 16, 1904).

ANÆMIAS OF INFANCY.

Anæmia from any cause in infancy, if severe enough, gives rise to the peculiar symptoms grouped under the headings "anæmia splenica infantum" and "anæmia splenica pseudoleukæmica" of von Jaksch. Consequently these are not specific blood diseases, but owe their peculiarities merely to the "infancy factor," and they represent merely different stages of the same condition. The common cause of severe anæmia in infants is gastro-intestinal catarrh, leading to the absorption of toxins either from the growth of micro-organisms or possibly from the formation of poisonous by-products of digestion. Leukæmia of infants is not a separate disease, but merely a still more advanced stage of this anæmia: that is, the difference between them is one of degree, and not of kind. Leukæmia of adults is a return to the condition of an infantile anæmia, and being rare, its causation is probably so narrowed down as to be practically specific. C. Riviere (Lancet, November 21, 1903).

APPENDICITIS, RETROPERITONEAL INFECTION A RESULT OF.

One should consider every delayed case with anxiety lest there should be retroperitoneal infection. One should be careful to give a guarded prognosis in every case of appendicitis ushered in by or complicated by chills or any symptoms of sepsis. If operating in such cases, one should consider retroperitoneal infection as already started, and act accordingly. The discovery and proper treatment of such infection is quite as important as the usual intraperitoneal technique. In view of the possibilities of retroperitoneal infection, the surgeon assumes great responsibility by advising nonintervention in appendicitis, and, while one will often advise delay when he believes the lesions are strictly intraperitoneal, yet it would appear to the writer that such a course is unsafe and should be condemned when there is reason to fear complications. I. S. Stone (Proceedings of the Southern Surgical and Gynæcological Association; Medical Record, January 9, 1904).

APPENDICITIS, SHORT INCISION IN.

The beginner in surgery is inclined to make incisions that are too short, rendering his work more difficult and very likely incomplete. With the establishment of confidence in his resources, the tendency is to make freer and bolder incisions. The surgeon cannot do good work, particularly in abdominal surgery, if he begins his work with incisions that are too short. He cannot do the best work if he continues to make incisions that are too bold or too free. After one has acquired a certain amount of skill in technique, he can return to the shorter incisions, which will allow the patient to escape with the least possible attack of incision. Even a bear has been known to die from too much incision, and in dealing with patients the incision is of some consequence to them. With long incisions there is more shock, more adhesions: 1. Because the exposure of the peritoneum through a long incision excites greater inflammatory reaction, and this results in more peritoneal adhesions, which must be disposed of, or which may remain to make the patient lifelong trouble. 2. The longer the incision, the greater the danger of infection from the aërial bacteria. With long incisions the patient's general resistance is interfered with. The author would make this statement, however, that the surgeon should make as long an incision as he feels is necessary, and by no means be guided by the idea that he is to conform to any length of incision, the idea being that if one can allow the patient to escape with a mild attack of incision, he should do so. R. T. Morris (Proceedings of the Southern Surgical and Gynæcological Association; Medical Record, January 9, 1904).

ARTERIOSCLEROSIS, DIETETIC TREATMENT OF.

As an epitome of the necessary dietetic restrictions for patients suffering from arteriosclerosis, the writer considers that the following may be said: The quantity of food should be greatly reduced, not more than one-half or two-thirds the general average for body-weight being required. This amount in detail should be estimated according to the general rules laid down. The quality of the food is important. Proteid foods are to be reduced, but not excluded. Meat should not be taken more than once daily and then in small quantity. The patient requires well-cooked food, avoiding large amounts of fat or other substances difficult of digestion. Alcohol,

tea, coffee, and cocoa, as well as tobacco, are to be forbidden or used with extreme moderation. Excessive drinking of water or drinking large quantities of any other fluid must be curtailed.

The regulation of meals is important. Breakfast should consist of fruit, a cereal with cream, and perhaps an egg, poached or soft boiled. There should be an interval of five or six hours between breakfast and dinner, and the heaviest meal should be taken in the middle of the day. It is not advisable to place too many restrictions upon what the patient shall have for his dinner. It may consist of soup, fish, meat, and vegetables, but overfeeding is to be strenuously avoided. Between dinner and supper five or six hours should also elapse, and this latter meal must be light and consist, as breakfast, mainly of fruit and cereals.

In general, a comparatively dry diet is indicated, and the patient should eat nothing between meals. Elimination must be kept at its maximum of efficiency and hygienic regulations laid down in great detail and strictly enforced. T. L. Coley (Medical News, February 13, 1904).

CALCIUM, BIOLOGICAL FUNCTION OF.

In an investigation of the relation which calcium bears to the enzymatic process that results in the coagulation of the blood, L. Sabbatani (Archivio Italiani de Biologie, October 10, 1903) finds that calcium is present in the ionic state, and that the amount of calcium ion sufficient to bring about coagulation is very small, much less than the total quantity of calcium normally present in the blood. This hypothesis explains rationally a large number of phenomena relating to blood-coagulation, namely, as follows: All the physical causes that diminish the degree of ionization can produce incoagulability (cold, great molecular concentration). All those reagents which, like the oxalates, fluorides, and alkaline carbonates, prevent coagulation by combining with the calcium in the blood, produce this result when present even in very small doses. Upon the basis of his researches the author concludes that the coagulation of blood requires the presence of Ca ion, whose concentration may vary between wide limits; this concentration has a minimum and a maximum, below and above which, respectively, the blood remains indefinitely in a liquid state. The blood will not coagulate if by means of physical or chemical reagents the Ca ion is made to go beyond the above limits. (Medical News, January 30, 1904.)

CALCULUS IN THE URETER.

The writer's conclusions, based on a study of one hundred and thirty-four cases of calculus in the ureter, are as follows: Intermittent pain on one side, with varying amounts of red blood in the urine, are constant symptoms of stone in the ureter. Though the best means of locating stones, the x-ray cannot yet give evidence sufficient in itself to warrant us in operating or refusing to operate on certain cases. If a calculus starts from the kidney to reach the bladder, it is likely to catch within an inch of one of three places, all of which are accessible to the surgeon through extraperitoneal openings. A single calculus is the rule, but the exception occurs, according to these cases, about once in eight times. The opening in the ureter or kidney pelvis for removal of the calculus should be sutured if possible. Both sorts of suture materials have been used

with equally good results, and wounds in both locations apparently heal equally well. The recovery is only delayed if sutures are not used. A calculus in the ureter is a menace not only to health, but to life, and its removal is an operation of low mortality, provided it is undertaken before secondary changes appear in the kidneys. Benjamin Tenney (Boston Medical and Surgical Journal, February 4, 1904).

CARCINOMA, ETIOLOGY OF.

From a considerable proportion (58.3 per cent.) of specimens of carcinoma mammæ an organism presenting characteristic features was isolated. This organism presents a life-history in which two cycles were traced: the one, a vegetative budding cycle, and the other, a sporulating cycle. The organism when injected into animals is capable of infecting and inhabiting endothelial and epithelial cells. The organism begins in endothelium and epithelium a process of proliferation as a result of which masses of new-formed tissue are built up which consist of a parenchyma and a stroma, and grow and extend actively from their centers of origin. This new cell-mass formation may be associated with growth of a similar character in neighboring glands, and some evidence was also produced that visceral metastasis occurs. Intracellular bodies are demonstrable in carcinomata mammæ which present the same features as the intracellular parasites of the experimentally produced nodules. The evidence derived from these researches points to the conclusion that the organism described is an etiological factor in the morbid process known as carcinoma mammæ. K. W. Moussarrat (British Medical Journal, January 23, 1904).

CERVICAL SYMPATHETIC, RESECTION OF THE.

The writer, after studying his own records, as well as those of other operators regarding the influence of resection of cervical sympathetic in optic-nerve atrophy, hydrophthalmos, and exophthalmic goiter, formulates the following conclusions: Excision of the superior cervical ganglion of the sympathetic nerve is worthy of a trial in those cases of simple atrophy of the optic nerve which resist measures less heroic. It is yet impossible to say whether the bilateral operation is advisable in unilateral optic-nerve atrophy. The value of sympathecticectomy in congenital hydrophthalmos has not been demonstrated. In exophthalmic goiter complete excision of the cervical sympathetic is followed by a larger percentage of cures than is any other procedure. Thus far no deaths have been recorded. The number of operations, however, is small and final conclusions can be announced only after a large number of cases shall have been treated by this method. J. M. Ball (Journal of the American Medical Association, January 30, 1904).

CHLORIDE OF SODIUM IN GASTRIC DISORDERS.

The author states that chloride of sodium facilitates the secretion of gastric juice and its wealth in hydrochloric acid. Solutions containing sodium chloride, therefore, are useful in hypochlorhydria and harmful in hyperchlorhydria. Milk tends to produce hypochlorhydria, but this may reach sufficient proportions to be prejudicial to the patient. In hyperpeptic patients the use of Carlsbad water and bismuth does not present these drawbacks. Hayem (Archives Générales de Médecine, February 9, 1904).

CONSUMPTION, THE FEVER IN.

In all infectious diseases, not local in their nature, fever of a greater or less degree is periodically or continuously present.

In consumption this is also true unless the vitality of the patient is so reduced as to render reaction to the toxic products of the disease conditions impossible. In no other disease does the thermometer render greater aid. In the beginning, when the physical signs are not pronounced and the patient complains only of languor and exhaustion, the slight rise of temperature in the evening or after exertion indicates the toxic influences of the tubercular processes. Later in the disease the temperature becomes higher.

This is due to the excessive local reaction in the portions of the lungs infected, a pneumonia of greater or less extent being present. Complicating this condition we frequently have the effects of streptococcic or staphylococcic infection. This is accompanied by a fever characterized by marked remissions and frequently complicated by chills. Profuse sweating is also noticed when the tone of the body is relaxed, as in sleep.

The inflammatory reactive processes which occur in the neighborhood of the tubercular *nidus* are conservative and necessary. This is only true, however, when they are limited, and when, as a result of their presence long continued, plastic material is thrown out which subsequently gives place to connective tissue. This so-called fibroid change forms a wall about the infected area, and may result in its encapsulation and consequent localization.

To assist in the establishment of this condition the once highly lauded tuberculin was recommended. The difficulty of selecting proper subjects upon whom to employ it and the impossibility of accurately limiting its effects has led to its almost total abandonment. A too active inflammatory condition about the confines of the tubercular *nidus* causes a diminution of the resisting power in these tissues, and thus offers an opportunity for the extension of the tubercular process or for the implantation of septic germs.

An endeavor to control this condition is therefore necessary. Physicians in many instances, unfortunately, treat the disease, and not the patient. With no other disease can this lead to so disastrous an end as in consumption.

It has been estimated that patients have usually been victims of the tubercular infection for two years before symptoms are sufficiently marked to attract attention. To control the disease which has thus been long in existence will require considerable time. If only a simple tuberculosis is present active efforts to stay its further progress can be immediately inaugurated, but the patient should be closely watched in order to limit the inflammatory processes.

With no other disease are patients presenting temperatures ranging from 100 or 102 degrees compelled to leave their beds and engage in exhaustive exercises or be sent away to other climes where opportunities to receive proper care are absent. To cure a person of consumption requires time and patience. One who cannot be relieved of his inflammatory conditions by rest at home, when placed under proper hygienic conditions, will only be injured by removal. The old maxim in this connection stands us well in hand: "Make haste slowly." Editorial (Cincinnati Lancet-Clinic, February 6, 1904).

DEPRESSANT DRUGS AND SUDDEN DEATHS.

It is very interesting to examine the statistics of sudden death from heart disease in New York City during the last three years. In 1900 there were registered 4069 deaths from heart disease in the greater city of New York in a population of approximately 3,455,000, while in 1901 there were 4626 such deaths, the population having presumably increased about 100,000. Thus there was an increased ratio of sudden deaths to population. In 1902 the number of sudden deaths reported from heart disease had increased still further to 5461. Calculating the percentages of sudden death from heart disease to population, allowing for the before-mentioned increase of population, the deaths of this kind to each thousand were, in 1900, 1.18; in 1901, 1.31; in 1902, 1.34.

For the year 1903 there was a decrease in the number of deaths from this cause, so that the ratio was only 1.28 per thousand.

There has been some discussion among sanitarians and public-health officials as to the reason for this decrease. A portion of the decrease has been ascribed definitely—and with considerable plausibility—to a certain cause. At the beginning of last year the Board of Health, suspecting that many prescriptions for phenacetin were being filled by druggists with acetanilid, or with a mixture of phenacetin and acetanilid, sent inspectors to obtain definite information on this matter. Altogether 373 samples of phenacetin were bought from the same number of drugstores in various parts of the city, phenacetin being specially asked for and in some instances even obtained, on a physician's prescription. Of the 373 samples, 58 were pure phenacetin; 315 were adulterated with cheaper drugs, mainly acetanilid, and in 267 cases containing more acetanilid than phenacetin; 32 samples were pure acetanilid. The commissioner made these facts public, and threatened to expose and prosecute all druggists who would hereafter be found committing this misdemeanor.

It is very interesting at least to find that in a single year after the investigation and supposed consequent reform on the part of the dispensing pharmacists, there should be a slight reduction in the actual sudden-death rate from heart disease, and that at a time when for many years there has been a constant increase in the death-rate from this cause. It is well known that acetanilid is a distinctly depressant drug for the heart. Professor Jacobi, of New York, always insists that it is an actual tissue-poison, to be used only with great care, and many therapeutists teach that it is the underlying cause for the increase in reported sudden deaths that has occurred in recent years.

This question of the evil of depressant drugs is all the more interesting because of the freedom with which so-called headache powders, mainly composed of acetanilid and other heart-depressants, are now so commonly bought and sold. Many women, and even men, think nothing of stepping into a drug-store and asking for something for a headache. The headache powders that are dispensed to them so freely always contain acetanilid, and great harm is being done in this way. It is probable that a similar investigation in other cities of the country might also furnish instructive facts. Certain it is that proper legal regulation of the sale of such depressant drugs, so that they could not be dispensed except under the direction of a competent physician, would in the long run have a beneficial effect on the sud-

den-death rate from heart disease. This cause of sudden death is becoming more frequent in this country, and is a serious menace for those suffering from even slight forms of heart disease if they are so foolish as to take these remedies. Editorial (Journal of the American Medical Association, January 16, 1904).

DILATATION OF THE CERVIX, FORCIBLE.

When the cervix is obliterated and the os will admit the dilator without difficulty, dilatation can be carried out in about twenty-five minutes, and there will be little or no laceration. In cases where the pregnancy has advanced to or near term, even though the cervix is not obliterated, dilatation may be accomplished with comparative safety to the cervix, provided care, time, and patience are expended in the operation. In cases of early pregnancy with the cervix unobliterated there is a decided risk of extensive lacerations, even though the greatest care is taken. J. M. M. Kerr (British Medical Journal, January 9, 1904).

EPILEPSY, CHLORIDE OF SODIUM IN.

The authors studied the use of this salt in three epileptics with special reference to their effect on paroxysms. In one of these cases, contrary to what might have been expected, large doses administered during four months very clearly diminished the number and intensity of the attacks. In the two others the benefit was not so marked, but at no time did it aggravate the condition of the patients. Enriquez and Grenet (Archives Générales de Médecine, February 9, 1904).

EPILEPSY, PATHOLOGY AND TREATMENT OF.

The writer states that he has come to the conclusion that epilepsy is an organic disease, and this opinion is based upon a personal study of two thousand cases of epilepsy of which he has satisfactory records. The recognition of Jacksonian epilepsy of several different types is now universal. This form is admitted to be a symptom of organic disease, though the nature of the latter may vary considerably. The character of the attack is uniform because the disease produces a uniform kind of irritation. In 38 per cent. of the writer's cases of ordinary epilepsy the attack was preceded by an aura, which was identical in many cases with the sensation starting a Jacksonian attack; the only difference between a Jacksonian attack of the motor type and the idiopathic form is in the extent of the spasm. The Jacksonian attack may run into a general motor spasm, showing that there is no essential difference between the two. The same may be said of the sensory attack. In many cases the fit begins with a cry, a discharge from the motor speech-center. If the Jacksonian attack becomes severe and widespread, consciousness is apt to be lost. The close resemblance between Jacksonian and ordinary epilepsy in 23 per cent. of the writer's cases seems to him to offer an argument that, in these cases at least, the ordinary type of epilepsy is due to organic lesions.

Another argument in support of his proposition is found in a study of cases of maldevelopment of the brain. Of 400 such cases, elsewhere analyzed, 156, or 39 per cent., were subjects of epilepsy. It is not uncommon to suppose a child to be suffering from epilepsy only, and yet careful inquiry shows a previous apoplexy. Among 2000 cases of epilepsy, 192 showed positive signs of maldevelopment of the brain. Of his cases of epilepsy, 68 per cent. developed before twenty years of age; in other words,

during the period of brain development. The writer maintains that many cases of idiopathic epilepsy are actually cases of maldevelopment of the brain, and that the epilepsy is the manifestation of this organic disease.

The incurability of epilepsy affords another argument for the organic nature of this disease. There is no question that proper care and treatment can reduce the frequency and sometimes mitigate the severity of the attacks. The author has come to the conclusion that the surgical treatment of epilepsy by exposing the brain and removing irritating foci offers as little hope for cure as does medical treatment. He has records of about fifty cases of Jacksonian epilepsy treated by trephining, and has yet to see a case in which such operative treatment has been followed by a permanently satisfactory result.

Another argument for the organic basis of epilepsy may be found in the alleged causes of the disease. The first of these is heredity; the second in frequency is trauma of the head. That trauma of the head is a more potent cause than trauma elsewhere is well shown by the statistics of the Franco-Prussian war. These showed that out of 8895 wounded in the head, 46 became epileptic, whereas out of 77,463 persons wounded elsewhere only 17 became epileptic. The epilepsies of advanced life can almost invariably be traced to endarteritis and atheroma. Fright is undoubtedly a cause of this disease, as 119 of the author's patients had the first fit after a severe fright. One great stumbling-block to the adoption of the theory of the organic origin of epilepsy is the multiplicity of causes enumerated by pathologists. The epileptic attack is the symptom, not a disease. The disease is a disorder of control. It seems far more reasonable to admit that epilepsy is an organic disease of the brain characterized by a lack of control of the mechanisms over motor energy. If this rule is adopted, we will more readily admit that it is incurable, and will be more willing to aid in the establishment of colonies for epileptics. M. Allen Starr (Proceedings of the New York Neurological Society; Medical Record, January 30, 1904).

FUSED KIDNEY.

According to available statistics, complete absence or extreme atrophy of one kidney is found once in 2650 cases; horseshoe kidney once in 1000 cases; and the fused kidney, exclusive of the horseshoe variety, once in about 16,000 cases. The great majority of fused kidneys are misplaced, being usually in the median line and lower than normal. The completely fused kidney, with normal position and approximately normal outline, is the rarest form of all. Cystoscopic examination, with catheterization of the ureters, will prevent the error of removing the only organ present in all cases, except those of fusion. Horseshoe and irregularly fused kidneys may be recognized on exposure by their abnormal shape or position, or by both. The single remaining and rarest variety, that with normal outline and position, can probably always be at least suspected and left, if the ureter and pelvis are found shifted to the anterior surface. W. A. Dennis (New York Medical Journal and Philadelphia Medical Journal, January 30, 1904).

GASTRIC SURGERY, THE POSSIBILITIES OF.

There is an untrodden tundra in which diagnosticians must wander for many years before some satisfactory position

in the rational care of gastric diseases is reached.

Dr. John B. Murphy, in the Annals of Surgery for December, writes that at the present time the surgical diseases of the stomach which are brought to the surgeon's notice may be classified as follows: (1) gastric carcinoma, (2) gastric ulcer, (3) pyloric obstruction, (4) pyloric retention, and (5) gastro-duodenal or pyloro-duodenal lesions. "If surgery," he says, "is to accomplish for the stomach all that it is capable of, the frequency with which the surgeon deals with the stomach for lesions must be in substantially the reverse order. If the first three of this reversed classification be early and properly treated from a surgical standpoint, the surgeon will be consulted very much less frequently for carcinoma of the stomach. From 35 to 45 per cent. of all carcinomata occur in the stomach; from 1 to $3\,^1/_2$ per cent. of all deaths are caused by this disease."

Dr. W. J. Mayo, of Rochester, Minn., has shown a mortality of only 15.5 per cent. in 109 cases of carcinoma of the stomach. This, from a purely technical standpoint, is a remarkable record, and shows to what a degree of perfection the art of mere removal of the growth has been brought. The final results, however, even in these cases, are profoundly discouraging. Even to the most hopeful they show that surgery, under the present limitations, has reached the bourne beyond which it cannot hope to pass. Improvement in final mortality rates must come either from a protection of the individual from cancer-producing conditions, or from pronounced improvement in our ability to diagnose the early stages of the disease.

Dr. Murphy, in his characteristically urgent and appealing style, forces the blunt, but as yet imperfectly recognized, truth that there is a distinct cancerous symptom-complex, which in a postmortem review of the case can almost invariably be traced. This complex is not, in his own words, "manifested as a thunderbolt from a clear sky," but is characterized by a special train of gastric symptoms that have existed in many cases for years. Irritations and retentions in the stomach play the same rôle in the production of carcinomata here as the pipe on the lip, the gall-stone in the bladder, and the fæces in the colon. What are the symptoms, he asks, which manifest themselves after the penetration of the basement membrane by these erratic epithelial cells? Do we, in other words, recognize the transition form precancerous conditions to cancerous?

Based on the reports from Mayo Robson's clinic, at which 101 cases of posterior gastro-enterostomy were done with but 3.9-per-cent. mortality, and 20 cases of pyloroplasty without a single death, it is extremely conservative to say that exploratory operations on the stomach are practically danger-free. If 100 cases showing symptoms of very slight pyloric retention could be operated upon, an exploratory laparotomy for diagnostic purposes could be done, and a large longitudinal gastrotomy with subsequent inspection of the gastric mucosa would be possible, with a likelihood of death in but perhaps a single case. If the hundred cases so treated were, on the other hand, left to themselves, the ultimate mortality would be many times greater. Mayo Robson concludes that an exploratory operation must be performed early in order to permit of a sufficiently radical operation being done to make such treatment worthy of execution.

Von Mikulicz has estimated that 4 or

5 per cent. of the race suffer from gastric ulcer and one-fifth die as the result of these gastric ulcerations. Carcinoma may then be considered as proved in many cases to be due to a subacute irritation of normal or cicatricial epithelial surfaces. Retention is undoubtedly a very important etiological factor in causing irritation, not alone by the mechanical stimulus of the retained food-particles, but by the chemical etching of the part by the acids of decomposition.

With such men as Mayo, von Mikulicz, Murphy, Czerny, Mayo Robson, and Moynihan urging the profession to make use of exploratory laparotomy in doubtful cases of gastric disease, is it not time that more general heed be given to their counsels? They have demonstrated, we believe, without the possibility of error, their ability to consummate with almost no mortality the most profoundly difficult gastric operations. Five per cent. of all people have gastric ulcers. A large, but unknown, number of these cases develop carcinoma. Welch states that 3.5 per cent. of all deaths are caused by this disease. Can any impartial judge hear the testimony of these men and yet decide that the course at present adhered to by the majority of the profession is not at variance with the best interests of the community? Editorial (Medical News, January 30, 1904).

GASTRIC ULCER, TREATMENT OF.

Postmortem statistics, clinical experience, and recent operating-room observations all tend to confirm the belief that neither the frequency nor the grave importance of gastric ulcer is fully appreciated by the profession generally, and the majority of cases are not recognized as such in life. An earlier and more positive diagnosis means greater alertness in our observation and interpretation of symptoms, and more frequent exploratory operations. In the history of every benign or malignant ulceration situated in a safely accessible region, there is always a time when the pathology can be corrected or favorably modified by appropriate mechanical means. Up to the present time the recognized indications for operative procedures in gastric ulcer have been the symptoms produced by the remote resultant pathology, as hæmorrhage, perforation, pyloric obstruction, cancer, etc.; but our aim in the future should be to make an earlier diagnosis, and, by the timely application of a rational treatment, prevent the occurrence of these later and more serious manifestations of ulcer. Taking into stricter account the local etiological factors will undoubtedly aid us in the prevention, diagnosis, and treatment of gastric ulcer. The causative pathology deserves more consideration in the surgical treatment of gastric ulcer than it has yet received. Perforation always demands the promptest surgical interference. Hæmorrhage from gastric ulcer is best treated by gastro-jejunostomy. Open or cicatrized ulcers near the pylorus always indicate rest for the parts and a sufficient outlet for the stomach contents. A posterior gastro-jejunostomy with sutures accomplishes these objects with the minimum risk and the most satisfactory results, and hence should usually be the operation of choice. Future advancement in the treatment of gastric ulcer must come from an earlier recognition and better understanding of antecedent coexisting and resultant pathological processes, rather than from any further refinements in operative procedures. H. D. Niles (Transactions of the Western Surgical and Gynæcological Association; New York Medical Journal and

Philadelphia Medical Journal, January 30, 1904).

GASTRO-INTESTINAL ATONY, USE OF ADRENAL EXTRACT IN.

Baccarani and Plessi (Medicinische Wochenschrift, iv, 393, 1903) have obtained good results with an extract prepared from the medulla of the suprarenal capsules in the treatment of atony of the stomach. They reason that it has the same effect upon the nonstriated muscle of this organ as it has upon the blood-vessels, and they employed it in a number of cases with a certain proportion of immediate results. Experimental observations show an increase in the motility of the stomach. (American Medicine, February 5, 1904.)

GASTRO-INTESTINAL TROUBLES AND THEIR TREATMENT BY MASSAGE.

The writer states that massage influences the glandular elements of the stomach, modifying the chemical action. It tends to approach the relations expressed in the formula to the normal relations, and re-establishes the equilibrium in the components of the gastric juice, lowering them when excessive, raising them when deficient. It acts particularly upon the *"evolutif"* troubles, in increasing and regularizing in a constant and manifest manner the evolution of digestion. Gustaf Norström (Medical Record, February 6, 1904).

HÆMORRHAGIC DISEASES.

Hæmophilia, congenital or acquired, is a toxinæmia with secondary auto-immunization to a quasinormal function; the scorbutic affections are chemical auto-intoxications, hæmorrhagic only because the blood is especially involved; and the purpura rheumatica group is only a manifestation of ordinary rheumatism or sepsis. After this exposition of their very diverse nature, it seems clear that the old class of the hæmorrhagic diseases has become obsolete, should be relegated to the domain of historical medicine, and cease to appear in our monographs and text-books to further puzzle the student and physician. Winckel's disease, melæna neonatorum, paroxysmal hæmoglobinuria, and allied clinical pictures must be regarded not as distinct entities, but as symptom-groups; like the other outwardly similar conditions, they have been placed among the hæmorrhagic diseases; their proper position is under the various heads of sepsis, congenital syphilis, malaria, auto-intoxications, and so on, according to the individual case. F. L. Wachenheim (Medical News, January 16, 1904).

HAFFKINE PROPHYLACTIC, RESULTS IN INDIA OF THE USE OF.

This substance renders a person immune for three months and acts within twenty-four hours. When inoculation is given in the incubation stage of the disease,—that is, before signs of plague appear,—it has in many cases the power to abort the disease. Inoculation has no effect on other diseases, except possibly eczema, which appears to be benefited by it. It confers a high degree of immunity and greatly reduces the number of plague attacks. When, in spite of inoculation, a person is attacked, his chances of recovery are greatly increased. B. R. Slaughter (Johns Hopkins Hospital Bulletin, November, 1903).

HAY FEVER.

The writer reviews Dunbar's work on this subject and gives his own experience with the use of serum from animals inoculated with the pollen toxin of golden-rod in ten cases. Admitting that

the number is too small for positive conclusions, he suggests that the experience obtained from the golden-rod antitoxin indicates that: The serum produces prompt and positive amelioration of the symptoms of fall hay fever in the majority of cases. In a smaller number this favorable result is soon accompanied with the complete disappearance of the affection. Where slight or no action is seen after its use, pollen as an etiological factor does not predominate. When results are obtained, it favorably influences all the manifestations of hay fever. While the writer is unable to state from personal experience the effect of the serum on hay fever occurring at other times of the year, or its effects when administered in advance of the attack, yet when given during the attack, irrespective of its severity, it produces marked palliation rather than absolute cure. Its effects on future attacks remain as yet unknown. The serum in powder form is slightly soothing to the nasal mucosa, has but little influence on the other symptoms of the affection, and in occasional cases it may act as a direct irritant. Finally, as a result of larger experience, especially with hay fever occurring at other times of the year, it may become necessary to modify some of the opinions in regard to this antitoxin. L. S. Somers (Proceedings of the Philadelphia County Medical Society, December 31, 1903).

HERNIA.

The possibility of an unsuspected incipient or small hernia as a possible cause of obscure abdominal symptoms or of obstruction must never be forgotten. Taxis or delay operation in strangulated cases must never be practiced, nor to open the sac and carefully inspect the contents neglected. The simple problem of radical cure should be borne in mind — restoration of smooth, flat peritoneum at the ring, and narrowing or closure of rings and canal, with peritoneum, aponeurosis, and muscle as building materials.

Transplantation of the cord is not an essential of the Bassini or of the Halstead method. A successful operation on inguinal or femoral hernia dispenses with the necessity for even a temporary truss, but after cure of umbilical or ventral hernia a well-fitting abdominal supporter is a comfort. Removal of the entire sac is not always necessary, and in the inguinal variety the distal portion is better left than to risk injury of the cord by a difficult and tedious dissection. The radical operation is one of the safest and most certain in surgery, and on that account may properly be advised as a routine measure. On the other hand, it should be remembered that in childhood all forms of hernia are usually curable by persistence in the use of a suitable truss, while after fifty-five the mortality rate increases, and as activity usually then decreases, a truss answers very well.

Finally young and middle-aged adults —especially males pursuing an active life—ought by all means to have the benefit of an operation which carries practically no danger, relieves them from the discomforts and dangers incident to wearing a truss, and the inevitable, even if small, risk of strangulated hernia. F. D. Gray (Medical Record, February 6, 1904).

INEBRIETY, PATHOLOGY OF.

In all cases of inebriety there are marked changes in the capillary and vascular system of the brain. The walls of the vessels show fibrinous deposits and sclerosis. The nerve-cells and den-

drites are altered and retracted, in some cases permanently destroyed; in all inebriates shrunken and disintegrated states exist. The liver, kidneys, and heart show diminution or enlargement, with fibrous and fatty deposits. Both the organic and functional activity of the organ are changed, and sclerotic states are present. Conditions of starvation and poisoning exist in all cases. Pathological changes are apparent in the paralysis of the sense-organs and the higher psychical functions of the brain. These conditions are so common following the use of alcohol, sometimes in its moderate use, but always when taken in excess, as to constitute a pathology that is traced directly to alcohol as the most prominent cause. The recent researches into the chemico-physiological action of alcohol on the heart, blood-vessels, cells, and nerve-fibers show a paralyzing and eroding action that cannot be mistaken for any other cause.

The final conclusion is that the peculiar brain and nerve wreckage so commonly seen in persons using alcohol is due to the specific cause, alcohol, following a uniform line of degeneration which is traceable with more or less exactness. T. D. Crothers (Journal of the American Medical Association, January 30, 1904).

INTERCOSTAL NEURALGIA, SURGERY OF.

Dr. Chipault and Dr. le Fur have recently reported in the Gazette des Hôpitaux what they seem to regard as an original procedure in the treatment of intercostal neuralgia (they do not, however, appear to have made themselves acquainted with the earlier operations of the same general nature which have been successfully carried out in this country by Keen, Abbé, and others). Their case was that of a man, aged 48 years, who had for a period of four years suffered excruciating neuralgic pains in the course of the eighth, ninth, and tenth intercostal nerves of the right side, and also around the umbilicus. There were violent crises, which had grown in intensity as the time progressed. The man had been treated at various hospitals and heavily dosed with the usual anodynes and soporifics,—he had taken morphine even up to 80 centigrams *per diem*,—but without permanent improvement. He had drifted into a deplorable state of general health, and had frequently contemplated suicide. The crisis used to occur at intervals which varied in length from a few minutes to a few hours. There was also a zone of hyperalgia corresponding to the distribution of the nerves above mentioned. There was no evidence of tabes, the reflexes were rather exaggerated, and there were none of the usual vesical or rectal complications of tabes.

The diagnosis arrived at was that of a *névrite radiculaire:* a neuritis of the roots of the affected nerves at the seat of their origin from the medulla spinalis. Accordingly, with the view of conveying surgical relief where drug-giving had failed, a vertical incision was made over the sixth and seventh dorsal spinous processes, which point had been found—by previous experiments on the cadaver—to correspond to the level of the origin of the roots of the affected nerves. The incision was prolonged till room was obtained for the removal of three of the posterior vertebral arches. The dura mater was then incised; the three nerve-roots sought for were fully exposed, and were found to emerge from a well-defined and sharply limited area of cicatricial arachnitis. The affected piece of arachnoid was removed, the dis-

eased nerve-roots excised, the dura mater sutured, and the external wound treated *secundum artem*. The patient left the hospital free from pain thirty-five days after the operation. Slight neural crises have since occurred, but not approaching—even remotely—in intensity or in frequency those from which the patient had suffered before the operation. Chipault and le Fur hope for a fair proportion of success for their procedure, in cases of inveterate spinal neuralgias. Editorial (New York Medical Journal and Philadelphia Medical Journal, February 27, 1904).

IODISM, PREVENTION OF.

This is the effect of the iodized alkalies suddenly flooding the organism and pouring out through the mucous membranes. F. Lesser (Deutsche medicinische Wochenschrift, vol. xxix, No. 46) believes that this afflux of alkali is what causes the catarrhal condition in the mucous membranes and leads to iodine intoxication. He suggests as a prophylactic measure that the iodine salts be administered in a mucilaginous vehicle in order to render absorption slower and more gradual. In some cases it may be advisable to give the iodine per rectum, where absorption is also slower. Another prophylactic measure is to use the iodine in the form of iodized fats or the injection of iodipin. In cases of pronounced idiosyncrasy the latter may be used at first in small injections in order to accustom the organism slowly, and then the internal administration may be gradually substituted. (Medical News, January 30, 1904.)

KIDNEY, DECAPSULATION OF THE.

Out of nine cases treated by the author, five have died at periods ranging from five days to two years and two months after operation. One case is probably cured. As the urine has only recently been found free from albumin and casts it is too early to classify it as cured. One case has improved and is still gaining, eleven months after operation. Two cases, a year after operation, show very little, if any, improvement.

In the nine cases the disease was of the chronic diffuse type. In each case ether was the anæsthetic used. In two cases in which there was an autopsy some time after operation it was found that a new capsule had formed not essentially different from the old one. The amount of urine and urea varied within wide limits. It was invariably smaller than usual the day after operation, but regained or exceeded the previous amount within a few days. F. G. Balch (Boston Medical and Surgical Journal, January 28, 1904).

We must admit that our present knowledge of the pathological physiology of renal disease is still defective, but we are justified in believing that nephritis has, as a rule, an infective origin, and probably that the defective renal drainage, due to swelling of the organ within a rigid capsule, plays a part in maintaining the disease. The cases in which general uræmic symptoms are more prominent than the physical signs obtained on the examination of the urine are unpromising cases for operation. Where the urinary signs and constitutional depression outweigh the distinctly uræmic general symptoms, we may regard the cases as favorable for operation. Where one kidney is mainly or predominantly affected, a unilateral operation upon that kidney offers an excellent chance of prolonged improvement in health, if not, indeed, of ultimate cure. In women, in whom ureteral catheterization involves little trauma

and risk, all cases of chronic nephritis should be subjected to ureteral catheterization and the unilateral ones selected for operation. Edward Reynolds (Boston Medical and Surgical Journal, February 4, 1904).

LARYNX, HYPERTROPHIC TUBERCULOSIS OF THE.

Hypertrophic or hyperplastic tuberculosis of the larynx must be considered a distinct and unusual form of the disease. As a rule, there is no ulceration. Ulceration may be present at the same time as the hyperplasia of the tissues in some part of the larynx, but the characteristic circumscribed hypertrophies and tumor formations do not break down. It is practically always secondary to the pulmonary involvement, but there appears to be some evidence in support of the statement that particularly this form of tuberculosis may at times be primary. C. F. Theisen (American Journal of the Medical Sciences, November, 1903).

LIQUEFIED AIR.

In liquid air we have the nearest approach to absolute zero ever obtained, excepting liquid hydrogen, which is many degrees colder and is liquefied by the assistance of liquid air. If there is any therapeutic value in cold we certainly have it in liquefied air, 312 degrees below zero, and from this any desired temperature above that point can be obtained. If there is any therapeutic advantage in having a dry cold, we have it in liquid air, for in anything colder than 32 degrees below zero no moisture can exist. That moist cold is more destructive to the tissues than dry cold is an accepted fact. If it is desired to produce a local anæsthesia by cold, we have no means of obtaining the result equal to liquid air, for it is dry, rapid, thorough, clean, and under perfect control. That circulatory change can be produced by the extremes of temperature, that of liquid air and the human body, is self-evident, and experiments in this direction have demonstrated its therapeutic value both in the production and reduction of inflammation, according to the method of its use.

Being nothing but the air we live in, reduced to a low degree of temperature and free from the usual pollutions of the atmosphere, it surpasses all other applications previously in use for the removal of all growths of benign or malignant character, because its application is practically painless, its action more rapid than electrical methods, and there is no systemic effect whatever following its local use.

If there is any value in the therapeutic use of oxygen, we have it in its most concentrated form in liquid air, from which it has been demonstrated we obtain liquid oxygen, and oxygen of much higher percentage and purer quality than obtained in any other way. A. C. White (Medical Record, January 16, 1904).

McGRAW ELASTIC LIGATURE, EXPERIMENTS WITH THE.

Experiments show that a successful anastomosis between the stomach and intestines, or two loops of intestine, is possible by means of the elastic ligature. The method is not applicable when an immediate opening is required. The time of the cut-out varies, depending upon the character of the ligature, the method of application, and the resistance of the tissues in any case, but the ligature will ultimately cut out. A knot at either end of the elastic loop increases the rapidity of the cut-out.

The pinching of the gut by the ligature seems to cause no bad symptoms. The serous surface of the outside of the joint when completed is smooth. The anastomosis by gross or microscopical examination shows no evidence why there should be any greater tendency to contraction of the opening than with the ordinary methods of intestinal suture. The procedure causes a minimum operative risk, both as regards shock and infection. Adhesions across the opening are a possible, but not a probable, complication. Extending these conclusions to practical operative work, it is the author's opinion that in cases in which an immediate opening of the bowel is not imperative, and in which the avoidance of operative shock is an important factor, the elastic ligature may prove to be the operation of choice in gastro-enterostomy and lateral anastomosis. F. T. Murphy (Boston Medical and Surgical Journal, January 28, 1904).

MIGRAINE AND EYESTRAIN.

According to the older conceptions, migraine was an absurd name of a trivial symptom, not generally present, of a disease widely prevalent in all human history, and vastly increased both in severity and numbers attacked by every advance in civilization.

It is to-day wrecking millions of lives and ambitions, often making of them tragedies of needless suffering. The cause and nature of the disease is utterly unknown, and even its location, or the organs in which it is seated, are also unknown. The very symptoms are indescribable, and reporters and writers differ greatly as to what they are. There is no treatment whatever that cures, none that even relieves. Thus the profession stands to-day impotent before its opprobrium, and, despairing of resolving the mystery, has turned its back upon it, eager only to explain some organic or infectious disease that does not cause a hundredth of the suffering that is due to migraine.

And yet a glance at the actual and entire life of migrainous patients, and especially of several such lives, would at once have revealed the secret. Few cases or perhaps no cases of the disease ever occurred except as a consequence of near use of astigmatic eyes, and every case is curable or at least preventable by proper spectacles.

It goes without saying that in the organism wrecked by a life of suffering all reaction is killed; such cases, however rare, exist, and cure of them is impossible. But even in them some alleviation or change of symptoms is wrought by wearing proper glasses. There is also, rarely, a habit of disease which is hard to break up, although in migraine it is usually to be construed as an unconscious confession of lack of skill in refraction. Migrainous diseases are especially easily controlled and are almost always extinguished even in the most severe and long-continued instances.

Moreover, migraine is only one of the many results of eyestrain. The word should, indeed, be abolished, as it is utterly meaningless. Its two chief symptoms are headache and sick headache, and these words should be used instead of migraine. When such symptoms are caused by evident organic, local, or systemic disease, there can be no mistake in the diagnosis. Yet even in such cases the pseudo-eyestrain symptoms, and also in the so-called "mimicries" of eyestrain, "scientific spectacles" will probably produce an al-

leviation or modification of the symptoms that is most noteworthy.

The continuance of all migrainous or eyestrain diseases indeed emphasizes the great need the writer previously urged of a systematic and periodical re-examination by scientific specialists of the bodily organs and functions throughout life. Apart from the objective scientific value of such tests, they would often reveal, and thus prevent, further, ingravescence of pathological conditions and trends, of profound value to individuals and families. G. M. Gould (American Medicine, February 6, 1904).

MORPHINE HABITUÉS, MENSTRUATION IN.

Amenorrhœa is certainly one of the most constant symptoms of morphinomania in the female, and many are the cases which prove conclusively that the menses, which are generally suppressed during the height of the intoxication, make their appearance shortly after a cure of the habit. *A priori*, it would seem difficult that the cachexia of these patients could permit the menstrual function to continue. The nervous system, profoundly depressed, becomes incapable of directing the menstrual function, while the circulatory disturbances, a dilated and weak heart and vascular hypotension, only contribute still more to the general functional wreck of the subject. It would appear that, in the first place, a dynamic disturbance of a purely vital order is in play, while the anatomical changes arising in the genital organs are simply secondary to a more or less prolonged arrest of the function and to a more advanced intoxication of the system.

Amenorrhœa does not necessarily mean that there is an absence of secretion of the ovum, and children have been born of females afflicted by the morphine habit and presenting amenorrhœa. On the other hand, Levinstein has seen an absolute atrophy of the entire female genital system in a case of morphinomania.

The practitioner should never lose sight of the fact that very often the habit starts from the use of morphine administered during the progress of certain painful affections of the uterus or adnexa. The importance of opium and its derivatives in the treatment of gynæcological diseases is well known to all, and it is also proven that as long as the subject is submitted to the constant use of morphine uterine life is momentarily done away with; but it will usually return after the use of the drug has been discontinued.

We know the important part played by the general condition and we also know that all the cachexiæ, such as carcinoma or tuberculosis, are accompanied by a suppression of the menses. It must be admitted, however, that morphine has an elective action upon the glandular structures, on the ovary as on others, such as the breast, salivary glands, and the glands of the stomach and intestine. There results, so to say, a sort of inhibitory action, preventing the Graafian follicles from maturing and by reflex action producing a congestion of uterus and ovaries, from which a suppression of ovulation and menstrual flux results.

After a time permanent lesions take place. When an organ atrophies, it loses all its functions, and this, as has been said, has been observed in the genital organs of females addicted to the use of morphine.

The reappearance of the menses is considered as a favorable prognostic element as far as the cure of the habit is

concerned, and apropos of this we would point out an interesting case recorded by Leet, in which a patient after her cure from the habit had been obtained presented serious nervous symptoms and excitement at each of the menstrual periods. Other such instances have been reported, and it consequently is of the greatest importance to note the regularity and progress of the return of the menses, since they indicate that a cure is being effected and also that the patient is not using any deceit. Editorial (Boston Medical and Surgical Journal, January 28, 1904).

MYOPIA — CAUSES, PREVENTION, AND MANAGEMENT OF.

Myopia is a condition in which there is an increase in the antero-posterior diameter of the eyeball. This condition is, except in very rare cases, acquired. It is a distinctly vicious process, and in the great majority of cases tends to increase. It should therefore be regarded as a disease. It usually begins in childhood.

Its causes may be divided into predisposing causes and a direct cause. *(a)* The predisposing causes are, in general terms, heredity, naturally lax conditions of the eye-tunics in certain individuals; the injudicious use of the eyes after sickness, usually in children, after the exanthemata; bad illumination, improperly placed illumination, incorrect position in the act of reading; the existence of refractive errors, generally astigmatism, which is uncorrected or improperly corrected; corneal opacities; any systemic condition which tends to produce cerebral congestion—for example, constipation. *(b)* The direct cause is an elongation of the eye on its antero-posterior axis, at the posterior pole, except in the case of corneal astigmatism. When myopia has once been acquired, its increase is directly caused by the pressure on the globe by the extrinsic muscles, due to the convergence of the visual lines toward the far point—the convergence theory. The weight of evidence and reason is distinctly against the accommodative theory.

Theoretically, full correction of the myopia is indicated, whereby the far point is thrust to infinity. Practically, this is not always possible. The far point should be thrust as far as possible toward infinity, but, at the same time, it should be compatible with the best vision and the greatest comfort. J. H. Claiborne (Journal of the American Medical Association, November 28, 1903).

NEURASTHENIA: ITS TREATMENT BY ACTINIC RAYS.

Actinic rays are chemical in their quality, but of small caloric value. They exist mainly in the ultraviolet zone of the spectrum. Actinic rays derived from high-power electric lights are similar to or identical with those of solar origin. Their use is as rational as that of sunlight itself. Their value lies in their decomposing, but at the same time reconstructive, molecular action on the body-tissues, mainly the blood-elements. By the method described by the author their activity is enhanced by the generation of ozone in free and nascent form. Their ultimate effect is one of oxidation, and consequently they increase the metabolic changes, thereby augmenting the natural processes of regeneration within the system. The germicidal action is especially pronounced on account of the fact that few germs can exist in the presence of free or nascent oxygen in either biatomic or triatomic form. A. E. Sterne (Journal

of the American Medical Association, February 20, 1904).

OSTEOMYELITIS, INFECTIOUS, TREATMENT OF.

In the acute stage of osteomyelitis drainage of abscess in the soft parts alone is not sufficient. The bone-marrow is infected, and must be drained. Removal of a sufficient amount of cortical bone alone is all that is required to give perfect drainage to the bone-marrow. Curettage and disturbance of the marrow cause extensive destruction of the endosteum, which, if let alone, has, in a limited number of cases operated on early, sufficient power of regeneration to repair the bony defect without the formation of a sequestrum. Under those circumstances a very early operation on the cases is necessary.

In the subacute stage it is desirable to remove the necrotic shaft, completely or partially, at an early stage in order to take advantage of the power or regeneration of the periosteum. The periosteum either before or after the beginning of periosteal ossification has the power of regenerating a completely or partially removed shaft of bone.

For mechanical reasons, the manipulation of the periosteum is easier after ossification of the periosteum has begun, but while the membrane still is plastic. Moreover, the rapidity and surety of perfect regeneration seem greater at that time. The operation consists of an incision through the skin and ossified periosteum down to the necrotic shaft, reflection of the periosteum, removal of the shaft (either entire or partial), folding of the plastic periosteum in such a way as to approximate the internal layers, suture of the edges by absorbable sutures, suture of the soft tissues, with, in both cases, provision for moderate drainage and complete immobilization. The success of the operation is naturally greater when asepsis is provided for by careful drainage preceding the operation and by careful removal of all infected material and tissues at the time of operation.

After removal of the necrotic shaft well-marked ossification of the new periosteal shaft appears between the twentieth and fortieth days, and the shaft is solid enough for use in locomotion in from four to eight months. If the epiphyseal line is extensively destroyed, considerable shortening of the limb may result. The regenerating bone at first becomes much larger than the original shaft was and is entirely composed of solid periosteal bone, with no marrow-canal. This enlargement probably is due to the fact that the bone is less completely calcified than it is later. In time the size of the bone decreases almost or quite to that of the original shaft, and, finally, judging from x-ray photographs, a marrow-canal is formed. This fact suggests that the size of bones may be due to two factors, heredity and environment, and that the ultimate size of the bone, therefore, is due to the function required of it.

The chief difficulty in completing the restoration of the shaft is to obtain complete union of the regenerated shaft to the epiphyseal line or to the portion of the normal shaft that remains. Slight necrosis and suppuration may persist at this point after the repair otherwise is complete, and may demand minor operations to remove small fragments of necrotic bone. Union at these points may be delayed, but ultimately always has taken place. The best time for the operation ordinarily is about two months after complete drainage of the acute infection. This operation is

the operation of preference, and is especially applicable when an accessory bone which can act as a splint is present. The anatomical, functional, and cosmetic results obtained are much superior to those obtained in any other way in cases of large bony defects due to acute infection of bone.

Where no accessory splint bone is present it may be impossible, in special cases, to maintain the contour of the affected bone by the above-mentioned method. In such cases advantage can be taken of the power of central growth possessed by the shell of periosteal bone in its *early* stages. This means that the necrotic bone must be removed just as soon as the periosteal shell is sufficiently advanced and solid to maintain contour and bear the weight of the limb. Roughly, this stage is reached when the thickness of the periosteal shell is equal to one-fourth of the diameter of the original shaft. The time when this condition exists can be determined by x-ray examination and by palpation. If the necrotic shaft is removed at this time, it leaves a solid cylinder of periosteal bone, very vascular, but partly calcified, analogous to the bone seen in an early external callus, and this shell has sufficient power of central growth to fill up large cavities. The rate of central growth seems to be markedly slower than that of peripheral growth. Persistence of sinuses is longer than in the preceding method, partly from a delay of closure of the cavity, and possibly from a failure to remove small fragments of necrotic bone at the time of operation. This method of operating leaves at first bone very much larger than the original bone, but, as in the preceding case, ultimately the bone diminishes in size and slowly approximates that of the original bone.

In the chronic cases more or less sequestrum surrounded by an enormously thick shell of dense cortical, more or less ivorylike bone, exists. The power of repair of dense cortical bone is very slight or practically wanting. Removal of sequestra leaves a more or less extensive cavity in bone, surrounded by a wall of dense bone and lined with unhealthy granulations, which has no tendency to close. The most satisfactory methods ordinarily recommended for the closure of such defects are the aseptic blood-clot, or obliteration of the cavity and approximation of skin-flaps. The aseptic blood-clot aims to fill the defect with dense scar-tissue, but does not lead to regeneration of bone, and requires for its success greater asepsis than ordinarily can be obtained in extensive osteomyelitis. The skin-flap method may close the cavity, but does so at the expense of great bony destruction.

From one semisuccessful case, from a consideration of the general process of regeneration of bone by the periosteum, and the successful results obtained in the subacute cases, it seems likely that better results can be obtained by removal of both sequestrum and involucrum and the use of the regenerative power of the periosteum. In removing a portion of a shaft under such circumstances the excision should be carried sufficiently far into the normal shaft to get above a medullary canal, occluded by dense, ivory bone, and reach vascular marrow.

Finally, the most satisfactory results in treatment of acute osteomyelitis can be obtained by complete drainage of soft tissues and marrow in the acute stage, with the removal of extensive necroses, if they occur, at a secondary operation undertaken about two months

later, and by adaptation of the regenerative power of the periosteum for the formation of a new shaft. E. H. Nichols (Journal of the American Medical Association, February 13, 1904).

PARALYSIS AGITANS, THE THYROID AND.

There are points of resemblance and clinical facts which justify the consideration of paralysis agitans as a toxic affection. The predominance of symptoms of nervous origin, especially tremor, constitutes a point of resemblance between paralysis agitans and other intoxications (alcohol, mercury, lead, etc.); variability and uncertainty in the lesions found in the nervous system are clinical facts. The constancy with which there is lacking in the etiology of the affection an exogenous poison to which it might be ascribed is a powerful reason for supposing that it is due to a toxic substance developed in the organism. The tremor and sensations of heat common to Basedow's disease and paralysis agitans justify the supposition that the auto-intoxication depends upon some disturbance of the thyroid body. The association of myxœdema and exophthalmos with paralysis agitans lends support to the hypothesis that Parkinson's disease depends upon an auto-intoxication of thyroid origin.

The two autopsies performed by the writer in paralysis agitans contribute confirmation to this hypothesis, lesions of the thyroid being striking: in one case a sclerotic condition having reduced the gland to nine grams and a colloid cystic condition being found in the other. Additional confirmation of this hypothesis was seen in the effect of administration of thyroidin; consisting in disappearance of sweating, marked diminution of tremor, especially that which accompanied voluntary movements, noticeable improvement in the gait, and increase in the arterial tension.

From these personal observations, it may be affirmed that paralysis agitans is of thyroid origin of autotoxic nature. The idea of its autotoxic nature is the most rational, and is based upon two findings in pathological anatomy: constancy of lesions in the thyroid and diversity and uncertainty of pathological localization in the central nervous system. D. José Codina Castelvi (Revista de Medicina y Cirugia Praticas; New York Medical Journal and Philadelphia Medical Journal, January 30, 1904).

PARATHYROID GLAND, PATHOLOGY OF THE.

Strangely enough, the parathyroid glands, though apparently of great physiological importance, have been neglected from an anatomical and pathological point of view. H. Petersen (Virchow's Archiv, vol. clxxiv, No. 3) has examined a hundred of these organs and has been able to find them in almost all cases at the middle of the posterior edge of the lateral lobes of the thyroid. Occasionally two organs were present on each side, less often only one on one side, or two or three on one side and one on the other. They generally bear a distinct relation to the larger thyroid vessels, and their shape varies considerably.

In young individuals the amount of connective tissue is scant and follows the vessels, so that the organ may be regarded as a mass of cells divided into lobules by its arteries; but with age the amount of fibrous tissue and fat increases. The vessels enter at a slight depression, which may be regarded as a hilum.

The greatest importance attaches itself to the parenchyma-cells, which may be of two types: a large cell with well-stained intercellular substance and peripheral nucleus and a smaller one with more indistinct contours and central nucleus. Excretory ducts could not be detected. After the twentieth year a third type of cell, indicating a degenerative swelling, may occur. Hæmorrhages, cystic degeneration, deposit of colloid, pigmentation, and fatty infiltration are very common. Elastic fibers occur only in the larger-sized vessels, while the smaller ones seem to distend and tear very readily. As with the thyroid gland, the internal secretion seems to be colloid in nature; it is occasionally stored up, and then presses the cells into duct-shaped structures. Any distinct pathological changes standing in relation with the disease of the patient were not found, but in one case of Addison's disease the colloid deposit was especially large; in one of pernicious anæmia there was complete cystic degeneration, and in a case of diabetes a pronounced fatty infiltration was present. (Medical News, January 30, 1904.)

PNEUMONIA, TREATMENT OF.

Every remedial agent should be employed to meet certain indications which may be present in one case and not in another. It is impossible to formulate a complete system of treatment that is applicable to all cases of pneumonia, and the same is true of typhoid fever and every other infectious disease.

When the term pneumonia is used without qualification it is understood that a primary pneumococcic pneumonia is intended. The pneumonia of secondary infection, the gravity of which is indicated by the designation "terminal" pneumonia so often applied to it, can scarcely be said to have a treatment, certainly not an independent one; and, in the majority of cases, when it makes its appearance the time for treatment has gone by. Pneumonia in the young and vigorous tends strongly to recovery under any treatment except a depressing one, and therefore it is scarcely fair to adduce such cases in favor of any therapeutic method.

In cases such as those last referred to he is not in the habit of employing hypodermoclysis. This, he is inclined to think, may be a mistake, for, besides its positive benefits, hypodermoclysis has the negative merit of being a perfectly safe and harmless procedure. Theoretically, hypodermoclysis is indicated in every case of pneumonia. It dilutes toxins and favors their elimination; it preserves the alkalinity of the blood, which is one of the most important properties of the vital fluid, and it does so by supplying a defective substance, sodium chloride; and, finally, it certainly tends to prevent the formation of heart-clot, which the writer believes to be a frequent cause of death in pneumonia. Theoretically, therefore, hypodermoclysis is indicated in every case of pneumonia, and practice has convinced the writer of its efficiency.

Statistics are of little use when it comes to the treatment of individual cases of disease. If statistics are infallible we have made no progress in the treatment of pneumonia, but have rather receded, since the days of Prof. J. Hughes Bennett, of Edinburgh, who, between the years 1848 and 1865, treated, at the Royal Infirmary of that city, 129 cases with but 4 deaths. Statistics, however, in such a disease as pneumonia, in which so much depends upon the age, the previous habits and condition of the patient and the "genius

epidemicus" are not only not infallible, but may be positively misleading. The writer only offers in support of hypodermoclysis a conviction of its efficiency which is based upon a more or less continuous employment of it since the year 1889, and the fact that it is now a recognized agent in the treatment of pneumonia. He believes the time is not far distant when it will be generally employed throughout the world. The only thing by which it can be supplanted is an efficient antitoxin.

In regard to the technique of hypodermoclysis, the solution employed by the author is composed of 50 grains of sodium chloride to the pint of distilled and sterilized water. In 1889, when he first employed hypodermoclysis in pneumonia, his apparatus consisted of a large glass funnel connected with several feet of rubber tubing to the end of which was attached a large, hollow needle. The apparatus being sterilized and the needle thrust beneath the skin, the fluid was poured into the funnel, which was held aloft by an assistant, and forced its way by gravity beneath the skin. This is a tedious process, and of late years the writer has used a large syringe with hollow needle attachment, or the aspirator employed for tapping the chest, the usual action of which may be easily reversed. The daily amount injected at one time varies between 8 ounces and a pint, and is repeated *pro re nata*.

The writer divides the agents employed in the treatment of pneumonia into two classes,—the fundamental and the accessory,—including among the former those that influence the toxæmia by their direct action, and among the latter those that give the organism a fictitious strength to resist a foe whose force must soon be spent. Among the fundamental agents are, first and foremost, saline hypodermoclysis; and, secondly (and very much so), hypodermic injections of quinine, as employed by Aufrecht and Petzold (Deutsches Archiv für klinische Medicine, Bd. 70, 1901), the carbonate of guaiacol, and the carbonate of creosote. Among the accessory agents are the local applications, alcohol, ammonia, morphine, digitalis, strychnine, nitroglycerin, camphorated oil, etc.

The writer knows of no disease in which the motto *obsta principiis* is so eminently applicable as it is in pneumonia. In its treatment the practitioner should be continually on the alert. His therapeutic resources are numerous. The chief point is to employ them with skill. F. P. Henry (Medical Chronicle, February, 1904).

PNEUMONIA, TREATMENT OF.

The metabolic processes of the individual should be sustained by the administration of easily digested or predigested foods in small quantities at stated intervals. Large amounts of pure water, for eliminative purposes, and oxygen-gas by inhalation should be administered whenever the absorbing surface of the pulmonary mucosa is involved to such extent as to interfere with proper metabolic oxygenation. Elimination should be favored *(a)* by the liver and bowel through the vigorous use of calomel and salts; *(b)* by the skin through sweats induced by external heat; *(c)* through withdrawal of blood when indicated by right-heart distension. Stimulation of the heart by strychnine, alcohol, or ammonium carbonate and in all suitable cases the subcutaneous injection of normal salt solution should be resorted to. Local treatment of the lung by leeching, wet

cupping, or dry cupping as indicated. De Lancey Rochester (Medical News, February 13, 1904).

PULMONARY TUBERCULOSIS, EARLY DIAGNOSIS OF.

The following points are emphasized by the writer: An increased pulse-rate; gradual loss of weight and strength without obvious cause; an evening rise of temperature; digestive disturbances, which are often present early and should be inquired into more carefully; the finding of numerous tubercle bacilli in the sputum; the broncho-vesicular, or probably better, as some authors term it, the vesiculo-bronchial, breathing; the small crepitant râles heard at the end of inspiration; the necessity of repeated physical examinations in order that we may reach some definite conclusion; the importance of keeping a daily record of the pulse and temperature is emphasized. F. S. Clarke (Medical Record, January 9, 1904).

PURINÆMIA.

The endogenous uric acid is the one chiefly concerned in gout and purinæmia. The uric, as well as phosphoric, acid excretion is merely an index of the amount of retrograde metamorphosis of the body-nucleins. Since the endogenous uric acid is independent of the presence of animal food in the diet, the patients should be limited only in quantity in order to reduce the intake to the needs of the organism. The rôle of the liver in gout is purely a negative one: *i.e.*, its inability to act as a poison filter. The keynote to the treatment lies in *(a)* limiting all toxic influences and formation of toxins, particularly in the alimentary canal, in order to minimize the retrograde metamorphosis of the body-nucleins; *(b)* preventing the absorption of all toxic material; or *(c)* promoting the elimination of the products of toxic agents. R. W. Wilcox (American Medicine, February 6, 1904).

PYLORIC STENOSIS IN AN INFANT.

An infant, healthy at birth, began to vomit at the end of three weeks. By careful regulation of the diet the vomiting improved at intervals, but as often returned. The vomitus showed no signs of gastric indigestion; it was projectile in character and often made up of several feedings. Constipation was a feature, but the stools when passed were normal in character. Emaciation became extreme. A visible and palpable tumor appeared in the epigastrium with dilatation and peristalsis of the stomach.

Gastro-enterostomy was performed successfully as regards the operation, but death ensued in twenty-three hours, at the age of three months, after an illness of ten weeks.

The autopsy showed hypertrophy of the pylorus, chiefly of the outer muscular coats, with narrowing of the lumen. C. W. Townsend (Boston Medical and Surgical Journal, February 11, 1904).

RADIUM.

Just at this time, while radium is engrossing so much general attention, not only because of its scientific, but also medico-therapeutic, interest, it is well to inquire a little into some of its unusual properties, in order to satisfactorily explain, if possible, their apparent mystifying character, and thereby place its therapeutic action upon a more rational basis.

It seems that this remarkable substance has been foreshadowed by Farraday's early conception of a fourth state of matter (in addition to the time-honored solid, liquid, and gaseous states),

which he called "radiant matter." Just as solids can be converted into liquids, and liquids into gases, when subjected to proper influences, Farraday conceived a fourth, or ultragaseous, state, to which matter could be raised, under favorable influences, which, as said before, he termed "radiant matter." At the time his theory was conceived, matter, under existing circumstances, was present to our definite knowledge only in the time-honored three states.

The discovery of the x-ray gave the first intimation of the tangible presence of matter in radiant form, brought to this condition, however, by strong artificial influences. It was not, however, until radium or some of its allied substances — uranium, polonium, Sidot's blend, etc.—were discovered that the presence of radiant matter in a natural state and tangible form was suspected. If Farraday's conception is, therefore, correct, radium is a natural form of matter existing in such a highly excited state that minute particles are thrown off with intense activity, thereby producing the so-called radiations. This particular action has been optically verified by observing the fluorescent action on Sidot's blend through the so-called Crookes spinthariscope, a form of microscope. A microscopical shower of fiery particles directed from the radium upon the blend can be readily observed.

Upon this principle, most, if not all, of its remarkable and otherwise unintelligible properties can be readily explained—the power of the so-called rays to penetrate soft and fairly hard substances; to act upon and reduce photographic plates, and thereby effect sciagraphs; its own luminescence and the ability to cause other substances subjected to its action to fluoresce.

It may be well to call attention to this point that most, if not all, of the phenomena of the x-ray, which bears a close analogy to radium, can be readily explained upon the same basis by attributing the cause of the x-ray to minute particles of platinum, emanating from the inclosed disc which is artificially excited to a fourth or radiant state by favoring conditions of low vacuum, high frequency, and heavy voltage. Radium and x-ray bear a close analogy to each other, and share many properties in common. Their radiations cannot be reflected, show the same character of penetration, the same action on photographic plates, and are invisible, unless the detection is materially aided by the fluorescent action of some responsive substance. Both exert similar extraordinary influences on animal tissue and cellular activity, by exercising power to inhibit pathological growth, to depilate hair, to incite a healthy and favorable stimulation, or induce an unfavorable ulceration and necrosis.

Although the early reports on the therapeutic properties of radium have been, for the most part, thus far, very favorable, it is well to temper our credence with a certain amount of skepticism, until the early and somewhat meager reports are amply confirmed by a more prolonged and patient investigation. While it is highly probable, from its close analogy to x-rays, that it will be demonstrated to possess positive therapeutic properties, and may be destined to hold an important place in cutaneous medicine, we must not lose sight of the fact that, in its present form, its physical properties are decidedly weaker than those of the x-ray, that it is a new and relatively untried remedy, and, like all new and untried agents (we need only refer to the intro-

duction into our therapeutics of electricity, liquid air, and the x-ray by way of comparison) our expectations are usually enthusiastically great, but our realizations often relatively small. Editorial (Cincinnati Lancet-Clinic, January 30, 1904).

RADIUM, THE EFFECTS OF, ON ANIMAL LIFE.

A Paris correspondent of the New York Daily Tribune contributes to its issue of December 27th an article on radium, and especially as regards its effects on animal life. The writer interviewed M. J. Danysz, of the Pasteur Institute, who is investigating the pathogenic action upon various animal tissues and substances of rays and emanations emitted by radium. In the course of his remarks M. Danysz said that guinea-pigs were more sensitive to radium emanations than rabbits. Applications of radium rays that create painful sores on the skins of guinea-pigs only act as stimulants or irritants on the skins of rabbits, and, singularly enough, cause, in the case of rabbits, a prolific growth of hair. This experiment was made by M. Danysz upon a mouse a month old. A minute glass tube containing one milligram of radium salt was inserted beneath the skin, just over the vertebral column. In three hours symptoms of paresis and ataxia ensued. In seven hours the mouse was seized with violent convulsions of lockjaw, and in twelve hours death occurred. Mice, from three to four months old, subjected to radium rays of the same force, died in a similar manner, and identical symptoms of paresis, ataxia, and lockjaw and death ensued within a period of from three to four days. From six to ten days were required to kill mice a year old subjected to the same experiments.

Guinea-pigs, upon whom the same experiments were made, resisted the effect of radium for a longer period than did mice of a corresponding age, but eventually they exhibited like symptoms and died. According to the investigator, the result of his studies shows that the nervous centers of animals or insects are extremely sensitive to the effect of the radium rays or emanations. The intestinal organs, on the contrary, are only slightly sensitive to the effect of radium. With regard to the effect of radium on microbes, M. Danysz states that in all cases the further development of the microbe was arrested, but that only in a few cases was the microbe actually killed. Editorial (Medical Record, January 9, 1904).

RESUSCITATION OF ANIMALS APPARENTLY DEAD.

When asphyxia caused failure of the heart and respiration, vigorous artificial respiration usually restored their function when administered within a few seconds. It was effective in an inverse ratio to the time that had elapsed; it was rarely effective after forty seconds. By the addition of saline infusion a larger proportion of animals could be resuscitated after the lapse of a little longer time. Rhythmical pressure upon the heart, either through the thorax by pressure upon the ribs over the heart or direct pressure within the thorax was also an aid. The effect of the traumatism to the heart by the direct method partially counterbalanced the benefit from this measure. Nitroglycerin, alcohol, and digitalis were useless; rapidly alternating the posture, head up, then head down, was not effective.

Suspending the animal head down and making rhythmical pressure upon the heart was an effective method. This

method gave the brain the advantage of gravity; it provided a moderate artificial circulation as well as respiration. It could be promptly applied. The addition of this saline infusion increased the effectiveness of the method. Animals apparently dead for periods up to fifteen minutes were resuscitated by the combined effect of artificial respiration, rhythmical pressure upon the heart, and the infusion of adrenalin. When the blood-pressure had risen to 30 millimeters Hg or more, the heart began to beat and the blood-pressure was rapidly restored. The return of respiration was signaled by a short, almost imperceptible movement of the diaphragm, the respiratory action becoming gradually stronger and more frequent. The conjunctival reflex returned early.

Some of the experiments failed on account of too great elevation of the adrenalin bottle; some on account of an overdose of adrenalin; several were only partially successful, owing to the great dilution of the adrenalin. Adrenalin, when injected directly into the chamber or into the wall of the heart, caused fibrillary contractions, after which the heart could not be resuscitated. After final cessation of the heart, by employing manual compression of the heart and infusing adrenalin, the blood-pressure could be raised even higher than the normal. Respiration in some instances was partially restored. Experiments in which saline infusion was substituted for adrenalin, and which were unsuccessful, were promptly successful on adding adrenalin.

In a patient with crushed skull, and whose heart had ceased beating for nine minutes, resuscitation of the heart for thirty-one minutes was made by this method. During the operation for the elevation of the depressed bone, the patient moved his head. Another patient, apparently dead from a severe crushing of the base of the skull, was partially resuscitated twenty-four minutes after the apparent death. The proofs of the apparent death were absence of respiration, absence of heart sound on a stethoscopic auscultation, and, as a final proof, on opening the jugular vein there was absolutely no circulation. In this case the blood-pressure at one time rose to 80 millimeters; voluntary respiration appeared. These evidences of vital action continued for thirty-four minutes. Crile (Proceedings of the Southern Surgical and Gynæcological Assoc.; Med. Rec., Jan. 4, 1904).

SEA VOYAGES, THE THERAPEUTIC USE OF.

The advantages of the ocean climate are its equability of temperature depending upon the radiation and absorption of the heat by the mass of water, the abundance of light, the freedom from dust and microbes and other impurities of the air, and the favorable atmospheric humidity. Aside from the climate, the prolonged rest and complete change of surroundings are important features in the curative effect of sea voyages. The disadvantages are the monotony, the cost, the poor ventilation of the cabins, the danger of poor food, and the possibility of seasickness. Other things being equal, the writer prefers a sailing vessel to a steamship. Voyages of short duration are useful to give mental and physical rest, especially in convalescence from such depressing affections as influenza. Longer voyages of one or two months are useful in cases of neurasthenia, sometimes in asthma, in scrofulous conditions, and frequently in incipient pulmonary tuberculosis. Prolonged voyages in which the vessel does not touch port are recom-

mended only for those with high resistive power or for drug *habitués.* Sometimes the prolonged sea voyage is beneficial in pulmonary tuberculosis, as a restorative, or even in well-advanced cases as a palliative. Patients with severe cardiac disease should not take ocean trips at all. Those with far advanced tuberculosis, chronic gastro-intestinal disorders, cholelithiasis, etc., should not take voyages of more than a week's duration. Neuralgic and gouty patients are frequently worse on sea than at home. S. S. Cohen (American Medicine, February 6, 1904).

STARCH DIGESTION IN INFANCY.

The saliva of very young infants contains a diastatic enzyme capable of converting small amounts of starch into maltose. This diastatic action of the saliva may continue in the stomach as long as two hours after feeding. Therefore, on physiological grounds, there is no reason why young infants can not digest small amounts of starch. H. L. K. Shaw (Albany Medical Annals, January, 1904).

SUPRA-ORBITAL TIC, INTRANEURAL INJECTION OF OSMIC ACID FOR.

The patient was a young man who had already been shown at the previous meeting of the society. He was then suffering from a severe form of facial tic, limited to the supra-orbital branch of the fifth nerve. Since then the writer operated on him as follows: Under local cocaine anæsthesia an incision was made beneath the eyebrow and all the fibers of the supra-orbital nerve isolated at the supra-orbital foramen. This bundle of nerve-fibers was then elevated and thoroughly infiltrated with a $1\,^1/_2$-per-cent. solution of osmic acid, the slight excess being wiped up immediately after the injection. The operation caused very little pain. On the day following, the painful tic occurred about fifteen times, as compared with forty to sixty shocks daily before operation. On the second day it occurred eight times, on the third day five times, and on the fourth day three times. On the fifth and subsequent days it did not occur at all, and, with the exception of a slight, passing flutter of the nerve-fibers on one occasion, the patient had remained entirely free from pain since. The operation, which was done on November 4th, had resulted in partial anæsthesia of the scalp, which still persisted. The cornea and conjunctiva were not affected. The patient had resumed his occupation as a clothing salesman, which the facial tic had compelled him to give up. In reply to a question as to whether the relief would be permanent, the author said he did not know. In some of the cases on record the pain had not returned after several years. Robert Abbé (Proceedings of the Practitioners' Society of New York; Medical Record, January 23, 1904).

SYMPATHETIC IN RELATION TO THE EYE, PHYSIOLOGY OF THE.

The sympathetic should not be considered the nerve of secretion for the lacrymal gland. The dilating impulse to the iris passes from a center in the medulla as far as the second dorsal nerve, following its branch to the cervical sympathetic, and through the long ciliary nerves reaches the muscular tissue of the iris. The weight of evidence favors the ciliary ganglion belonging to the sympathetic. Its removal does not influence intra-ocular tension. The sympathetic nerve seems to have no relationship to accommodation or changes in refraction. Section or extirpation causes a tempo-

rary fall of tension. Electrical stimulation causes retraction of the nictitating membrane and proptosis. It is followed by contraction of the blood-vessels of the conjunctiva and iris. Stimulation of certain cortical areas causes pupillary dilatation and all the symptoms of stimulation of the cervical sympathetic. Division of the sympathetic at the same time stops the other symptoms, but not the dilatation, which is supposed to be due to inhibition of the tonic action of the third nerve. Myosis is greater after excision of the cervical sympathetic ganglion than after section of the sympathetic cord. The myotic pupil responds to light-stimulus, is still further contracted by eserine, and may be dilated by atropine. It is uninfluenced by cocaine, which, however, may somewhat widen the contracted palpebral fissure. Sympatheticectomy or ganglionectomy may cause increased vascularia ztion of the eyeground, perhaps ciliary hæmorrhages, and alteration in the retinal ganglion-cells. G. E. de Schweinitz (Journal of the American Medical Association, January 30, 1904).

TONSILLITIS.

The teeth should receive attention from infancy. The tongue when coated should be cleansed as carefully as the teeth. The mouth is a primary cause of tonsillitis and ought to receive simultaneous treatment with the throat. Offensive breath, from micro-organisms present in the mouth and throat, can be eliminated through the personal effort of the patient. Bad taste in the mouth, particularly before meals, suggests infection of the tonsils, decomposing epithelium *débris* on the tongue, gums, teeth, and oro-pharynx—one or all. This fifth (in which Sternberg found 42 different varieties of micro-organisms) ought to be cleaned and sterilized several times daily by the patient. Diseased tonsils, not necessarily enlarged and often hidden, no longer act as a barrier to disease, but rather as a germ incubator and ought to be removed. No method of removing the tonsil is a safeguard against dangerous hæmorrhage when one operates on a bleeder. G. D. Murray (The Laryngoscope, December, 1903).

TRYPANOSOMIASIS.

The trypanosomes seen in the blood of man, whether symptoms of sleeping sickness were present or not, have always been the same. The number of cases in which trypanosomes from the spinal fluid have been examined have been too small to admit of a definite description of morphological characteristics. None of the forms seen exhibited any morphological appearance incompatible with *Trypanosoma gambiense*. The parasites seen in the blood of rats inoculated with the cerebro-spinal fluid of cases of sleeping sickness are the same as those seen in rats inoculated with the blood of cases of either sleeping sickness or simple trypanosomiasis. The organisms in the blood of rats inoculated with trypanosomes from any of the three indicated sources differed in no way from those observed in animals infected with *Trypanosoma gambiense*. J. E. Dutton, J. L. Todd, and C. Christy (British Medical Journal, January 23, 1904).

TUBERCULOSIS, BACTERIAL TREATMENT OF.

The bacillus can, with absolute safety, be injected alive and in pure culture into the human system. After its injection it remains alive in the human system often for weeks, and does no other harm than occasionally, and for reasons not understood, to cause slight suppura-

tion at the point of injection. After its injection it causes a variable febrile reaction, which is never serious, and which probably varies in intensity according to the amount of its enzymes that are injected with the bacillus, or according to the amount of material the bacillus finds to feed on. It has been found in the urine, blood, and sputa of persons injected. There is often a subjective sense of local reaction at the site of the tuberculous lesion after its injection into the groins of persons suffering from tuberculosis. After its injection into the connective tissue about tuberculous fistulæ in ano a marked improvement, even to the closing of the fistula, has followed. After its injection into the ear of persons suffering from tuberculous otitis media, such persons have been in nowise harmed, but, on the contrary, have in several instances been cured of their otorrhœa and other symptoms. After its application on gauze or cotton packing to sinuses leading from supposedly tuberculous carious bone, such sinuses and caries have healed with surprising promptness. Its hypodermic injection into patients suffering from tuberculosis of the lungs has been followed in many cases by marked relief of such symptoms as cough, fever, night-sweats, wasting, anorexia, diarrhœa, and hæmorrhage. Its instillation into the open tuberculous pleural cavity has caused the drying up of a purulent discharge that was resistant to ordinary methods of treatment, and its hypodermic injection into consumptive patients has, in several demonstrable cases, been followed by the apparent cure of the disease.

As a valuable scavenger of the tuberculous human system, the writer's bacillus claims the interest of the medical profession for the further reason that it grows in acid or alkaline media, that its product is alkaline, that it grows in the presence or absence of air, that it feeds only on dead matter, that it grows more quickly and has more vitality than the ordinary pus-producing germs, and that its introduction into the human tissues is followed by a marked diminution of the number of ordinary pus-producing germs present anywhere in the body. Some investigation, as yet incomplete, would seem to show that this bacillus is not without beneficial effect on other pathological conditions than tuberculosis. S. J. Maher (New York Medical Journal and Philadelphia Medical Journal, January 30, 1904).

TUBERCULOUS PATIENTS IN SOCIETY.

With the widespread knowledge of the infectious nature of tuberculosis there has come within recent years an unfortunate attitude of the general public against the consumptive who spends his life in the midst of healthy people. The dread of the bacillus has taken deep root in the minds of the people, and the prejudice that goes with half-knowledge of the simple facts of etiology often results in great injustice to the consumptive.

Julius Friedlaender, of Berlin, in a recent article on the social *status* of the consumptive ("Tuberculosis," volume i, No. 10), forcibly calls attention to this condition of affairs. He deals chiefly with the consumptive belonging to the better situated classes, who is a person of education and fit to associate with the best of mankind. Such a patient has often spent several months in a sanatorium, where his disease has perhaps been favorably influenced. Upon returning to the circle of acquaintances and associates in which he moved before he was taken ill he frequently meets with the keenest distrust and most un-

reasonable fear of infection at every step.

Such a patient has only one remedy, namely: to pretend that he is perfectly healthy and to disguise his illness. So it often happens that such patients will rather swallow their sputum or will secretly expectorate anywhere rather than expose themselves to curious glances and whispered comments, by the use of a pocket-flask or other device, the usefulness of which has been taught them in the sanatorium. To the public the use of the sputum-flask is not a mode of preventing the spread of the disease, but a betrayal of the presence of a communicable disease. There can be no question that the hypocrisy of the consumptive, which is thus forced upon him by society, reacts viciously both upon himself and upon the persons in his surroundings, promoting the spread of the disease infinitely more than the mere social intercourse or business association with a consumptive who knows thoroughly well how to take care of his sputum.

The point that Friedlaender makes is that the intelligent part of the public must be made to understand that the consumptive who has been through a course of treatment at a sanatorium or who has been privately instructed in the methods of prophylaxis is not dangerous to associate with. He is certainly less dangerous than the man who fears to use the proper measures for the care of his sputum lest he become a social outcast. A consumptive who has been properly trained at a sanatorium or at home has the methods of prophylaxis so thoroughly incorporated into his daily routine that they become as a very part of his being.

The greatest injustice to the consumptive, however, is shown in the so-called "open" health resorts: *i.e.*, in places where consumptives go on account of the "climate," without placing themselves under medical supervision or entering a sanatorium. In such places the consumptive has a great deal to suffer from the public's exaggerated fear of "contagion." During the dull season, when the healthy patrons do not crowd the hotels, the consumptive is welcomed everywhere with open arms and his cough is not noticed, so long as he pays his bills. When the "season" is at its height, however, and the hotels are packed to their utmost capacity, the landlords often do their best to get rid of the consumptive, as he is not an attraction to the other patrons. So, in some European resorts the tuberculous patient has been known to wander from one place to another in search of accommodations, and to be requested to leave on some pretext or other, or else compelled to leave through the multiplicity of petty annoyances which hotel managers can so cleverly devise when there is need. The statements just made are applied by Friedlaender to European resorts such as San Remo and Nervi. In this country, where democratic customs demand a more just consideration of individual rights, this injustice to the consumptive by hotel keepers is far less frequently seen, and yet instances of it occur, and many a consumptive who travels much can tell tales not unlike those related by the author mentioned.

The whole question of the relation of the consumptive to society at large has a broader significance. The very fact that there is fear and prejudice against him renders it necessary for him to hide his disease, at times through the mere necessity of having a roof over his head for the night. The result is, of

course, that rooms that have been occupied by consumptives in hotels and boarding houses, and especially in the "health resorts," are never disinfected, as they should be, after the patient leaves the premises. The very fact that he has to conceal his disease renders it impossible for him to take even the ordinary precautions in expectorating. Thus, this unreasonable attitude toward the consumptive strikes back at the very persons who have the greatest prejudice against associating with tuberculous individuals.

The public must unquestionably be taught more about the true *status* of the etiology of tuberculosis and must be impressed with the comparatively insignificant danger of transmission when all precautions are taken. Editorial (New York Medical Journal and Philadelphia Medical Journal, February 27, 1904).

TYPHOID FEVER, DIAGNOSIS OF.

There is no single symptom on which alone an early diagnosis of typhoid fever can be made. It is only by careful consideration of the symptom-complex that a clinical diagnosis can be arrived at. The most trustworthy, as well as the earliest, sign of typhoid fever is the presence in the circulating blood of the bacillus of Eberth. The demonstration of the bacillus of Eberth in the blood is not beyond any fairly well equipped laboratory. The bacillus of Eberth is found in the fæces later than in the blood, but with comparative ease. The presence of the typhoid bacillus in the fæces is of great value as a corroborative sign. Its presence in the rose spots is a trustworthy sign, but has no advantages over the examination of the blood from other localities. The serum-reaction of Widal is seldom demonstrable during the earliest stages of typhoid fever. It is of value only in the higher dilutions. W. C. Rucker (American Journal of the Medical Sciences, January, 1904).

TYPHOID FEVER, PREVENTION OF.

In most of the larger municipalities of this country typhoid fever is to-day an endemic disease. In our smaller cities and rural districts its epidemic appearance is not of infrequent occurrence. These facts have been the occasion of considerable comment both in the lay and medical press. Without doubt they are worthy of careful consideration. Since contaminated milk or water supplies are the chief avenues along which the infection of typhoid fever is transmitted, municipal and State authorities, in their fight against this disease, have principally directed their attention toward safeguarding these channels against contamination.

When we consider the country at large there can be no question but that the measures thus instituted have been in a marked degree effective. If this were not so the frequency of typhoid fever would equal or exceed that of any other bacterial disease with the possible exception of tuberculosis. If, however, when taken collectively the work of the authorities in this direction deserves praise rather than criticism, it is nevertheless true that at times typhoid epidemics develop in communities in which these preventive measures have not been properly put into execution. Such epidemics usually occur in our smaller cities and rural districts. In many of these the health and other official departments are incompletely and insufficiently organized. They are therefore unable to put into operation means which have proved efficient in large municipalities where organization is much more complete.

If this is true, and it can be substantiated by careful investigation, the blame for the contaminated milk and water supplies is not so much to be attached to the individuals in office as it is to the condition under which they are forced to perform their work. It follows, therefore, that the greatest need at the present time is a thorough reorganization in the smaller cities and rural districts of the departments under whose direction these measures of prevention must be carried on. Only in this way is it possible to bring them up to the requirements and place them in a position where they can be reasonably expected to exercise the degree of vigilance which is necessary.

After all has been said upon this phase of the subject which can be said, the fact still remains that the cause of the prevalence of typhoid fever, either in its endemic or epidemic form, is not to be found in a contamination of the water, milk, or other food supply. These are usually the avenues along which the infective agent is conveyed. The cause lies back of this. It is none other than the failure to destroy the causative bacillus as, by various routes, it leaves the bodies of those suffering from the disease. Measures directed toward this end lie essentially outside the province of officials and come directly within the sphere of the medical practitioner. It cannot be doubted but that the medical profession realize this necessity, and in the majority of instances institute such measures so far as they understand them and so far as the circumstances which surround each case permit. It has recently been said that the institution of such measures is usually a farce. Any such statement as this is not only untrue, but it is a direct libel upon the honesty and intelligence of the medical profession. If this statement were true the dissemination of typhoid bacilli would be so great that the prevalence of the disease would necessarily be greater than it is. And this would be so in spite of the most careful action of the authorities in safeguarding the avenues of infection. All admit that the disinfection which accompanies a case of typhoid fever is usually insufficient, but this is very different from saying that it is a farce—which means that it is a ridiculous sham. Nor do we believe that this insufficiency of disinfection in typhoid fever is due to the widespread use by the medical profession of any patented brand of disinfectant which is lacking in bactericidal power. For if such a disinfectant were in widespread use the results of its employment would be *nil*. This would mean a much greater dissemination of typhoid bacilli than can be reasonably supposed to take place.

In looking for the routes by which the typhoid bacillus leaves the body we find that they are principally two: the fæces and the urine. The bacilli are most abundant in the fæces at the height of the disease. From this time on they become reduced in numbers. At the time when convalescence is reached they are usually absent. Exactly the reverse holds true for the presence of the bacilli in the urine. Here they usually first appear during defervescence. In convalescence they reach their greatest numbers. In many cases they are present in the urine for weeks after recovery. The disinfection of the fæces has received time-honored consideration. That it is efficiently carried out in the majority of cases of typhoid fever cannot be doubted. The disinfection of the urine is of more recent occurrence. Investigation will show that at the present time if the urine is disinfected at all this is only

practiced during the disease or at the best only until convalescence is established. There is no doubt whatever but that in many instances those who have recovered from typhoid fever go about voiding urine which contains typhoid bacilli, and that this is by far the most frequent means of the dissemination of these organisms from these patients. The realization of this condition and the institution of the proper means for combating it by the medical profession is the crying necessity.

The prevention of typhoid fever at present, therefore, requires the consideration of two factors: 1. The destruction of the causative bacillus as, by various routes, it leaves the bodies of those suffering from the disease. 2. The safeguarding of the avenues of infection. The first and most important is to be accomplished by the physician. The second requires the attention of the authorities. Neither of these objects is to be accomplished by slander or incrimination. Education and organization are rather the watchwords. Editorial (Medical Record, January 16, 1904).

X-RAY AS A THERAPEUTIC AGENT.

This agent is indicated in superficial epitheliomas; as a post-operative treatment in most of our carcinoma cases; and in inoperable cases, as a justifiable piece of experimental work in the hope that this line of investigation may possibly lead to valuable results. The dangers of the x-ray as a therapeutic agent are two, and these dangers should be especially pointed out to the general profession. The first danger is the possibility in all cases of producing a serious x-ray burn. This possibility can be reduced to a minimum by a thorough understanding of the technique, but cannot be entirely done away with, as burns will occur even in the hands of experts of the greatest experience. The second danger, and the more important one, is the using of the x-ray in cases in which it should not be used, in which its use is of no benefit to the patient, means valuable time lost, and prevents the patient receiving the greater chances of cure offered by radical surgical removal of the disease. A. D. Bevan (Journal of the American Medical Association, January 2, 1904).

X-RAY TREATMENT OF SARCOMA.

The use of x-ray in cancer should be limited to recurrent and inoperable cases, with the sole exception of small superficial epitheliomata of the face. Even here, the author believes, the results of excision will prove to be better and more lasting, save in the proximity of the eyelids and nostrils. It is most misleading to report as cures cases in which malignant tumors have merely disappeared under the influence of the x-ray, since speedy return is the rule rather than the exception. At the present moment there is no evidence to prove that any permanent cures have been obtained save possibly in the case of rodent ulcer. W. B. Coley (Medical News, February 6, 1904).

YELLOW FEVER, ETIOLOGY OF.

The fusiform stage of the so-called *Myxococcidium stegomyia* of Parker, Beyer, and Pothier (1903) is not connected in any way with the transmission of yellow fever. This organism appears to be not a protozoan parasite, but a yeast-fungus. In its fusiform stage, the only form in which it is constantly present, it shows the characteristic budding, staining affinities, and vacuolation or spore-formation of a blastomycete, and it is found with considerable regularity

in both male and female mosquitoes that have purposely been fed on overripe banana to which a pure culture of a wild yeast had been added in the laboratory. The organism has not hitherto been found in repeated examinations of mosquitoes of the genus *Stegomyia* that have bitten yellow-fever patients in the early stage of the disease, when such insects had been fed only on blood, dry sugar, and water. This statement applies also to mosquitoes that are known to have reproduced the disease in human beings. J. Carroll (Journal of the American Medical Association, November 28, 1903).

Books and Monographs Received.

The editor begs to acknowledge, with thanks, the receipt of the following books and monographs:—

Infant-feeding in its Relation to Health and Disease. A Modern Book on all Methods of Feeding. For Students, Practitioners, and Nurses. By Louis Fischer, M.D., Visiting Physician to the Willard Parker and Riverside Hospitals, New York City; Attending Physician to the Children's Service of the New York German Poliklinik; Former Instructor in Diseases of Children at the New York Post-graduate Medical School and Hospital; Fellow of the New York Academy of Medicine, etc. Third Edition, Thoroughly Revised and Largely Rewritten. Containing 54 Illustrations, with 24 Charts and Tables, Mostly Original. 357 Pages, 5 3/4 x 8 3/4 inches. Neatly bound in Extra Cloth. Price, $2.00, net. F. A. Davis Company, Publishers, 1914-16 Cherry Street, Philadelphia, Pa.

Annual Report of the Surgeon-General of the Public Health and Marine-Hospital Service of the United States for the Fiscal Year 1902.——Transactions of the Ninth Annual Meeting of the American Laryngological, Rhinological, and Otological Society, Held in Lexington, Ky., April 30, May 1 and 3, 1903.——Fifteenth Annual Report of the New Jersey Training School for Feeble-minded Girls and Boys.——Third Annual Report of the New York State Hospital for the Care of Crippled and Deformed Children, for the Year Ending September 30, 1903.——Bulletin de la Société Médicale de l'Yonne. Tome xliii, Année 1902.——Sunshine and Fresh Air *vs.* the Finsen Ultraviolet Rays and the Roentgen Rays in Tuberculosis of the Joints and Bones. By De Forest Willard, Philadelphia. 1903.——Widener Memorial Industrial Training School for Crippled Children. By De Forrest Willard, Philadelphia. 1903.——Treatment in Four Hundred and Forty-two Cases of Movable Kidney without Surgical Intervention. By Charles D. Aaron, Detroit, Mich. 1904.——Flatulence, Meteorism, and Tympanites. By C. D. Aaron, Detroit, Mich. 1903.——Leprosy in the Hawaiian Islands. By Judson Daland, Philadelphia. 1903.——The Management of Exacerbations in the Course of Pulmonary Tuberculosis. By J. F. Russell, New York. 1903.——On Movable, or Dropped, Kidney: its Relation to Diseases of the Nervous System. By C. W. Suckling, Birmingham, Eng. 1903.——Sterile Water Anæsthesia in the Office Treatment of Rectal Diseases. By S. G. Gant, New York City. 1904.——Vaccination, with Special Reference to its Technique and Nontaking Vaccination. By W. H. Faulds, Kingston, Pa. 1903.——The Present Status of Iron Therapy. By R. W. Wilcox, New York. 1904.——The Effects of the Secondary Static Currents in Removing Albumin and Casts from the Urine, with Reports of Cases. By Boardman Reed, Philadelphia. 1903.——Leprosy. By A. W. Hitt, Chicago, Ill. 1897.——Aplasia of the Papilla and Retinal Vessels with a Peculiar Anomaly at the Macula in Eyes Otherwise Normal. By Alexander Duane, New York City. 1903.——The Value of the Screen-test as a Precise Means of Measuring Squint. By Alexander Duane, New York. 1903.—The Systematic Use of Cylinders in Making the Shadow Test. By Alexander Duane, New York. 1903.——Suggestions for a Uniform Nomenclature of the Movements and Motor Anomalies of the Eye. By Alexander Duane, New York. 1903.——Tuberculous Ulceration of the Rectum and Anus. By L. H. Adler, Philadelphia. 1903.——Pancreatitis Diabetica. By Colonel Francis T. B. Fest, of Tegucigalpa, Honduras, C. A. 1903.——Third Annual Report of the Committee of Inspection Appointed by the Executive Committee of the Post-graduate Medical School to Review the Experiments of Dr. John F. Russell in the Treatment of Pulmonary Tuberculosis at the Post-graduate Hospital, for the Year 1903.——Experiment Station Work, xxiii. United States Department of Agriculture, Washington, D. C. 1903.——The Dairy Herd: its Formation and Management. By H. E. Alvord, United States Department of Agriculture, Washington, D. C. 1904.——Drainage of Farm Lands. By C. G. Elliott, United States Department of Agriculture, Washington, D. C. 1904.——Beautifying the Home Grounds. By L. C. Corbett, United States Department of Agriculture, Washington, D. C. 1904.

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"INTERNAL SECRETION IN DISEASE AND TREATMENT" IN ENGLAND.

BY CHARLES E. DE M. SAJOUS, M.D.,

PHILADELPHIA.

UNDER the above heading the *British Medical Journal* of March 19, 1904 (page 667), publishes a report of a meeting of the Chelsea Clinical Society which took place in London on the 8th inst. The closing address of the evening was by Dr. A. E. Wright, formerly Professor of Pathology at Netley. I take the liberty of

quoting his remarks *in extenso* as given by the English periodical, emphasizing by italics passages which will doubtless recall to our readers views I have submitted in this journal and elsewhere (*Philadelphia Medical Journal,* March 7, 1903, and "Internal Secretions and the Principles of Medicine," Vol. I, Philadelphia, 1903) during the past year:—

"Professor A. E. Wright said that the secretions he would speak about were those which were *not elaborated by any gland;* they [the profession] *did not know* where they were produced in the body, but they knew that they were created and that *they were present in considerable quantities in the blood.* He took, as the most familiar example of an internal secretion, diphtheria antitoxin. But *all the protective substances which were involved in the cure of disease were to be regarded as produced by internal secretion.* When a person was invaded with an acute disease it might, he thought, be said that that person was suffering from want of a particular secretion, just as a person suffering from myxœdema was suffering from the want of his thyroid secretion. When the blood of a man affected with acne was investigated and compared with normal blood it was found defective in a certain internal secretion which affected staphylococci and rendered them subject to phagocytosis. When a patient was suffering from a defective thyroid gland they could go to a normal animal and get thyroid juice, and give to the patient as much as he required, but in the case of a patient who was suffering from boils, or from acne, or tuberculosis, by reason of the fact that his blood was deficient in protective substances, they could not obtain ready made those protective substances which were required; but they could, *if they knew the laws by which such substances were produced, call forth a production of those substances in the person with whom they had to deal.* Of some thirty cases—boils, and acne and sycosis—which he (Professor Wright) had treated by inoculation, there had not been one of them in which there had not been produced enough of that internal secretion to enable the body to kill off the staphylococcus. In dealing with tuberculosis the same principle had a wide range of application. *Patients with tuberculosis recovered if they produced enough of the internal secretion to render their bodies uninhabitable by the tubercle bacillus.* The customary treatment of tuberculosis aimed not at directly calling forth an elaboration of protective substances. It contented itself with placing the patient in the open air in the hope that he would elaborate them. But, knowing the laws under which protective elements were produced, it was possible in many cases to call forth the necessary internal secretion in the patient who was the subject of tuberculosis to enable him to overcome the disease. Broadly speaking, in the case of disease of chronic character, or in the case of a disease which was liable to relapse, but which was not immediately dangerous to life, there was *an interval during which those secreting tissues in the body might be induced to secrete the protective substances required.* Professor Wright then went over briefly what was known about immunization, about the way in which those internal secretions developed, and how those matters had been tested in the case of man. He related, in connection with antityphoid inoculation, how he had made very long series of investigations on the conditions in which an antidotal substance was produced; and how he had done the same in connection with staphylococcic invasion, and how, for the last year or

two, he had been working out continuously the laws in connection with the production of protective substances against tuberculosis. In every laboratory in Europe experiments have been done on immunization, and the general law of *the production of immunity under those protective substances might be taken as well established.* He mentioned some results in connection with the treatment of lupus and tuberculosis of the bladder by the inoculation of a tubercle vaccine (Koch's new tuberculin), in which he had seen extraordinarily good results. Professor Wright concluded by saying that it should be recognized that *chronic or local infection was a symptom of defective internal secretions,* and that those secretions could be elaborated in the body when there was youth, strength, and health, by the application of the appropriate stimulus given in proper quantities and given always in the light of careful and systemic examination of the effects produced on the blood."

Inasmuch as Professor Wright states that the source of the internal secretions to which he refers is not known, his view that they are "not elaborated by any gland" can only be accepted as a postulate—capable perhaps of being defended successfully by him. It seems to me, however,—leaving the ductless glands out of question,—that the very word "secretion" suggests a glandular source even though we consider leucocytes and their fixed counterparts, the endothelial cells, as such. Indeed, leucocytes, as viewed from my standpoint, and as previously emphasized, are naught else than minute glands, their mitoma being microscopical canaliculi for their basophile, acidophile, etc., *granules*—the morphological homologues of secretions in other glands, the pancreas, the parotid, etc.

Excepting the implied multiplicity of sera, Professor Wright strikingly confirms, it seems to me, the conception I have submitted of the means through which the body protects itself against pathogenic elements, poisons, etc., by means of its *internal secretions.* The "laws" which underlie the production of these substances, a knowledge of which he craves, are, I may add, embodied in the functions of the ductless glands which produce *trypsin, adrenoxin,* and *fibrinogen,* the two latter serving jointly to insure the efficiency of the first, the body's main resource against pathogenic elements. Prominent among these laws is the following: "The power of the organism to antagonize the constitutional effects of pathogenic germs, their toxins, and other poisons is directly proportionate, all else being equal, to the functional efficiency of the adrenal system."

Moreover, Professor Wright's remarks are of great value in that they emphasize—as I have done ("Internal Secretions," etc., Vol. I, pp. 609-666 and 728-751)—the dependence of the immunizing process, now being studied "in every laboratory," upon the internal secretions. "The general law of the production of immunity under these protective substances" may, perhaps, as Professor Wright says, "be taken as well established," but the admission that the *source* of the protective substances is unknown obviously weakens this assertion. In fact, I do not hesitate to state that pathologists will continue to work in the dark, as they have

now been doing several years, until they realize that the very few substances, to which various names have been given: Buchner's alexins, Ehrlich's complement, Metchnikoff's cytase, Ehrlich's intermediary body or amboceptor, Bordet's sensitizing substance, etc., *are* internal secretions in the true sense of the word: *i.e.*, products of *ductless glands.*

Cyclopædia of Current Literature.

ANIMAL PARASITE (TRICHINA SPIRALIS), EXPERIMENTAL STUDY OF THE RELATION OF CELLS WITH EOSINOPHILE GRANULATION TO INFECTION WITH AN.

The administration of trichina spiralis to the guinea-pig causes an increase of the eosinophile leucocytes in the blood, comparable to that which accompanies human infection. There is no constant alteration of the number of these cells until the end of the second week after infection, when their relative and absolute number rapidly increases and reaches a maximum at the end of the third week. At this time embryonic trichinæ are in process of transmission from the intestinal mucosa by way of the lymphatic vessels and the blood through the lungs to the muscular system.

Eosinophile cells accumulate in the mesenteric lymphatic glands and in the lungs and form foci which resemble small abscesses in which polynuclear leucocytes are replaced by eosinophile cells. These cells are provided with polymorphous nuclei, and do not differ from the eosinophile leucocytes of the circulating blood. Accumulation of eosinophile cells in the mesenteric lymphatic glands and in the lungs is explained by the transmission of the embryonic parasite through these organs.

Increase of eosinophile cells in the blood and in other organs is accompanied by characteristic changes in the bone-marrow. The fat is diminished in amount, and cellular elements replace it. Cells with eosinophile granulation are present in immense number, and particularly numerous are the eosinophile myelocytes, cells peculiar to the bone-marrow, while such cells, undergoing mitotic division, are more numerous than usual. The bone-marrow is the seat of multiplication of the eosinophile leucocytes.

The number of eosinophile leucocytes in the blood always diminishes before death; so that the proportion usually becomes less than 1 per cent.

Infection with a very large number of trichinæ causes a rapid diminution of the number of eosinophile leucocytes, and is quickly fatal. The eosinophile cells of the bone-marrow exhibit degenerative changes, of which nuclear fragmentation is most characteristic. Similar changes may affect the eosinophile cells of the intestinal mucosa and of the mesenteric lymph-glands. Mild infection stimulates the eosinophile cells to active multiplication, but severe infection causes their destruction. E. L. Opie (American Journal of the Medical Sciences, March, 1904).

ANTISTREPTOCOCCIC SERUM IN THE TREATMENT OF SCARLET FEVER AND OF DIPHTHERIA.

Antistreptococcic serum is of distinct value in a certain number of cases of scarlet fever, particularly in those

where the throat lesion is severe and toxæmia is going on. Bacteriological examination will give no sure guide as to the cases in which serum will be beneficial; therefore it is advisable to give the serum early and to make the bacteriological examination afterward.

The serum ought to be given early in the disease just as in diphtheria. The longer the disease has lasted before the serum is used, the less likelihood is there that it will be beneficial. Antistreptococcic serum is too often brought in with the strychnine and oxygen when it is unreasonable to expect it to do good. If the first dose or two have no effect on the temperature, its continuation will probably not be of any value. The serum is liable to produce urticario-erythematous rashes. Even in those cases in which it does no good there is no evidence to show that it does harm. F. P. Mackie (Lancet, February 20, 1904).

ANTITOXINS AND AGGLUTININS.

A series of experiments led the writer to conclude that these bodies do not circulate independently in the blood and that they exist therein in the combined state. Again, his work suggested that they occurred in excess in the cellular elements, the production of both the antitoxin and agglutinins depending mainly upon the leucocytes. F. Figari (Berliner klinische Wochenschrift, February 15, 1904).

APPENDICITIS.

Appendicitis in its limited sense is primarily a simple affection, but appendicitis when viewed in the possibility of its consequences is a most serious and treacherous condition, which requires more than the ordinary skill and judgment in its safe management. The rules and experience of a hospital and city practice are not always applicable to private practice, especially in the country. Here the most varying conditions and circumstances are met with which require different considerations. The rules and line of action which guide the specialist will not do in their entirety for the average practitioner. His different surroundings, opportunities, and more limited experience must be given due consideration in order to avoid serious mistakes and blunders. Not every physician can handle every case efficiently and safely; complicated cases require a competent surgeon experienced in abdominal work. Unless this is more universally recognized, many lives will be sacrificed through untimely and incomplete operations. The writer is convinced that the large mortality of appendicitis is, to a great extent, due to the "wait and see" policy, or, if timely operated, to incomplete operation, faulty technique, or faulty after-treatment. The writer is also convinced that many lives have been sacrificed by the once prevalent, but more and more decreasing, policy of postponing the operation (when the case has been seen at the beginning of the attack) for twenty-four or forty-eight hours to see what will develop; or, if several days have passed, to wait for more permanent adhesions, or, with the idea at any stage, to gain an interval operation.

The interval operation has a higher absolute mortality than is accredited to it. Cases that do not reach the interim (die from some complication), and those that refuse operation afterward and die from a subsequent fulminating attack or various complications, must be considered with it and charged up to it. An interval operation should not be aimed at, because the small increased risk of operat-

ing during the attack is more than offset (or compensated) by the uncertainty and dangers of reaching the interim.

The Ochsner treatment as applied to appendicitis is a most valuable addition to the means of reducing the average mortality of this disease. Many lives will be saved by it when intelligently applied; but, on the other hand, impossible things—cures instead of relief—will be expected from it, and consequently many deaths will be attributed to it. A certain percentage of cases will not reach the interim; others will afterward refuse operation, not only during the interval, but also during a subsequent attack, and will thereby lose their lives. Cases of intestinal obstruction will be operated when too late, and in at least some cases of appendicitis serious complications will result from the postponement of the operation. Localization of the inflammation will depend as much on the nature of the perforation, the condition of the appendix, and the condition of the patient, as well as on the presence or absence of peristalsis. The author does not agree with Dr. Ochsner that a circumscribed abscess is such a harmless affair. He does not believe that we are justified in letting a perityphlitis go on to abscess formation—to become walled off. He does not believe that the latter is a more favorable condition; or that, if abscess formation has taken place, we should wait indefinitely for absorption or rupture into the cæcum to take place, because of the accompanying dangers (sepsis, endocarditis, fæcal fistula, thrombophlebitis, peritonitis, etc.).

It is very difficult or even impossible in many cases to differentiate between a swelling of the cæcum, etc., due to deposition of plastic lymph, or a swelling due to abscess formation. The time element and absence or presence of leucocytosis ought to assist us in arriving at a diagnosis.

In estimating whether a given case requires operation or not, a threatening aspect of *all* the symptoms and signs must not be looked for, but operation will often have to be decided upon owing to the severe and serious condition of a *single* manifestation—*e.g.*, constant and severe pain, great and diffused tenderness, marked and wide rigidity, persistent reflex vomiting, high fever, a rapid disproportionate pulse, or a large abscess, etc. This principle was emphasized by Dr. Ladd, of Milwaukee, some years ago, and it has stood the writer well in its practical application.

In the differential diagnosis gallstones, movable kidney, and pneumonia must not be omitted from consideration. The teaching to operate "as soon as the diagnosis is made or reasonably certain," or, "we should operate within the first twenty-four or forty-eight hours," is indefinite and misleading; and the further rule to "either operate immediately or else do not operate till late in the interval" is irrational or dangerous. The local and general condition of the patient must be taken into consideration. An operation may be perfectly safe in some cases at any time during an acute attack and it may be unsafe in others during the first or second day, or absolutely hopeless in some at the third or fourth day. The question is principally one of judgment. Operations have been postponed and lives lost because of simply considering the time element instead of the condition of the patient.

While it would be desirable, from the point of greatest good and lowest mortality, to have all cases of appendicitis operated on at once (or in due time) if seen at the beginning of the attack, this is neither necessary nor practicable—if it

were necessary. There will always be cases in which various circumstances will make an operation impracticable or even impossible, cases in which operations will be refused, or cases which remain undiagnosed or have been neglected or mistreated; and therefore we must have some definite line of treatment for these cases.

While the author *suggests* to the patient the advisability of operation in *all* primary cases of appendicitis, he does not urge it or even recommend it except in cases of considerable severity or where he is satisfied—or even suspects—that the inflammation has passed beyond the structures of the appendix. Many reasons could be given for this stand.

The author believes in *timely operations* in all recurring and all chronic cases of appendicitis that are not influenced by regulation of the diet, the bowels, the habits, etc. The patient should not be permitted to go through more than one or two mild or moderately severe attacks of appendicitis. In this connection it must not be forgotten that a physician is usually not called for mild forms of appendiceal or abdominal trouble. A careful history of all cases should therefore be taken.

The author believes in *immediate operation* (to-day—not to-morrow) in all severe cases of appendicitis, in all cases of perityphlitis, and perityphlitic abscess, and even in developing general peritonitis, provided the patient is in good general condition so that there is reasonable assurance that he or she will stand the operation, and, provided further, that the environments are favorable and that a competent surgeon is at hand. It is ungrateful work to operate on *septic cases,* although some may be saved; and *moribund cases* should certainly not be operated on, because it will only bring discredit upon the operation, and thus tend to influence operable cases from submitting to it.

While in some cases even slight causes (peristalsis or some slight exertion) may result in rupture of the diseased appendix or a limiting abscess, in very many others even great exertion, wide transportation, etc., will have no effect upon the condition, and it may be put down as a rule that it is much better to transport the patient with the view of giving him the advantages of better facilities and of immediate operation, if found advisable, than to leave him under unfavorable surroundings to die from want of efficient care. This point is not appreciated sufficiently. Under *unfavorable* circumstances serious cases will give a lower mortality with good conservative (medical) than with poor radical (surgical) treatment.

It should never be forgotten that the severity of previous attacks stands in no fixed relation to the seriousness of the subsequent or final attack. A very mild attack may be followed later by a serious attack with a fatal termination.

The importance of hernia has been greatly exaggerated and overestimated. The incision should always be ample and rather external to McBurney's point.

All contaminated cases should be freely drained. Lives have been lost by not observing this rule. The more complete the operation (the appendix removed), the less frequent will be fæcal fistulæ.

The writer wishes to emphasize that in order to make our statistics more valuable, to arrive at a better understanding of what to do in any given case, it is imperative that a more definite, clinical, and anatomico-pathological *classification* of cases should be made. To say that so many cases of appendicitis recovered or

died after this or that line of treatment, or that they were acute or chronic, does not mean very much. It makes a great difference in the prognosis and results whether a case of simple appendicitis or a case of perityphlitis or perityphlitic abscess is dealt with, with an ulcerative or gangrenous appendix with or without rupture, or with a diffuse peritonitis with or without systemic intoxication. Thus a certain line of treatment may be perfectly efficient and reliable in mild or simple cases,—many such get well without any treatment,—but wholly inadequate in the more complicated forms of appendicitis. L. F. Schmauss (St. Paul Medical Journal, March, 1904).

APPENDICITIS, EFFUSION IN.

In many cases—aside from purulent ones — opening of the abdomen shows the presence of a serous effusion. The writer sought to recognize this condition, which is an early sign of a severe process, before operative procedures were resorted to. He succeeded in doing so by placing the index finger and thumb of the one hand, some distance apart, on the area overlying the lesion, and gently striking the index with the middle finger of the other hand. A fluctuating wave was thus started which could be felt with the thumb. L. Moszkowicz (Münchener medicinische Wochenschrift, January 26, 1904).

APPENDICITIS, OBSTRUCTION AND CONSEQUENT DISTENSION THE CAUSE OF.

Simple infection does not account for the suddenness of the attack nor severity of the pathological changes in acute appendicitis. The evident interference with the blood-supply is best accounted for by an increased intra-appendicular pressure. Simply injecting bacteria into the appendix will not produce appendicitis unless used in abnormal amounts and virulence. Subperitoneal ligation of the appendix with a simple ligature without distension cannot be made sufficiently permanent to produce a general infection of the appendix, typical of appendicitis in the human being. Experiments in dogs show that hydraulic pressure equal to the arterial tension maintained within the lumen of the appendix for a short time is promptly followed by typical appendicitis. The blood-supply in an extremity may be cut off with impunity for hours; but in the appendix the ever-present bacteria at once begin an infection, their entrance into the tissues being facilitated by the opening of normal and traumatic avenues by the very distension which cuts off the circulation. The importance of making a complete diagnosis and prognosis during the first twelve hours of the attack is emphasized. This study suggests the possibility of infections or other lesions being produced in other hollow viscera, especially in the gall-bladder, the stomach, and intestines by temporary overdistension. C. Van Zwalenburg (Journal of the American Medical Association, March 26, 1904).

ARTERIOSCLEROSIS.

The changes in the blood-vessels are important accompaniments of senility. Whether these begin in the one coat or in the other, they give rise to loss of elasticity and reduction of lumen, so that the tissues are less well than normally supplied with blood, which, in addition, may be deficient quantitatively and qualitatively. The result is a condition of impaired nutrition, which by nature of the underlying disorder is insidious in onset and progressive in course. The alterations in the vessels, while as a rule widespread, are not always uniform in

distribution, either in extent or in degree, and the sequels to which they give rise vary correspondingly.

A number of interesting points were brought out in a discussion of this most important topic held recently before the Pathological Society of London (Lancet, February 20, 1904). Dr. T. D. Savill defined arteriosclerosis as a chronic, generalized thickening, condensation, or degeneration of the arterial walls, which become hard or less elastic than normal, while the lumen remains unduly patent after death. He distinguishes three varieties, namely: intimal, medial, and adventitial. The first and third are often secondary to disease of the muscular coat. Atheroma, a patchy fibrocellular infiltration of the intima, is to be considered as distinct from intimal sclerosis. From a study of the bodies of four hundred persons dead at the age of 60 years and upward, Dr. Savill reaches the conclusion that extensive patchy atheroma is consistent with extreme longevity and with a total absence of symptoms or vascular complications, and that the same statement is applicable to marked generalized intimal and adventitial sclerosis, provided that the media is relatively free from hypertrophy or disease, and that the balance between the heart and the arteries is not materially disturbed. On the other hand, he considers moderate disease of the muscular coat a serious potential evil. This may take the form of atrophy, which is not common, but is found in association with some wasting diseases; hypertrophy, which is more common, especially after middle life; cloudy swelling, with which granular degeneration is frequently associated; necrosis and calcification, occurring in spots or foci of varied size.

The term arterial hypermyotrophy is employed to describe a condition characterized by a generalized increase in the thickness of the muscular coat of the arteries due to an increase in volume, with or without numerical increase, of the individual muscular fibers. It is a condition of genuine muscular hypertrophy, although it may be succeeded by degeneration. At an early stage it is relatively uncomplicated by other arterial disease, while later intimal and adventitial sclerosis and degeneration are likely to be present. The condition may be secondary to chronic renal disease, but often it occurs independently of such disease. It is, as a rule, associated with hypertrophy of the heart, either as a cause or a result, or as the product of a cause common to both. The blood-pressure is high, and the condition of the vessel may be responsible for hæmorrhage into the brain and other situations.

Dr. Clifford Allbutt recognizes three varieties of arteriosclerosis, namely: toxic, as from lead, infectious diseases, diabetes, etc.; involuntary, from senile degeneration; and secondary, from arterial hyperpiesis. The first and the second are not necessarily attended with increased arterial pressure, on which the third is essentially dependent. The second and third may be present together, but are not so as a rule. In the second, calcification is more likely to occur and all of the coats of the artery may be involved, but the heart is little, if at all, hypertrophied or dilated. In the secondary variety the first apparent factor is an increase in arterial pressure, probably dependent on some alteration in the blood, and this in turn on some perversion of metabolism.

Dr. J. F. H. Broadbent includes under the term arteriosclerosis the degenerative lesions of the aorta comprised under atheroma, as well as those of the smaller

vessels, on account of their close etiological and pathological relations. In a study of the vascular changes in 16 cases of cerebral hæmorrhage senile degeneration of the vessels was found in 2, while 7 were associated with granular kidney and 7 with a type of kidney in which the most characteristic changes were thickening and hyaline degeneration of the inner coat of the vessels. In the latter 14 cases the heart and the middle coat of the radial artery were greatly hypertrophied. The cerebral vessels were dilated, thinned, and hyaline, or studded with small, white patches, which on microscopical examination were found to consist of localized thickening and degeneration of the subendothelial tissues, over which the muscular coat, thin and atrophied in some instances, could not, as a rule, be traced. In 4 cases there was advanced atheroma of the aorta; in the remainder slight degenerative changes immediately above the aortic valves or no change appreciable to the naked eye. Of 6 cases in which the coronary arteries of the heart were examined they were found healthy in 4 and in a state of advanced degeneration in 2.

The principal clinical characteristics were high arterial tension, hypertrophy of the heart, and in several instances albuminuria. The high arterial tension was attributed to increased peripheral resistance, as a result of tonic contraction of the arterioles and capillaries, due to toxic substances circulating in the blood, perhaps from imperfect elimination on the part of the diseased kidneys. In the second group of cases the high arterial tension is believed to have antedated by many years the disease of the kidneys, and the toxic substances, such as lead and the products of deranged metabolism, that induce hypertonicity of the peripheral arterioles, also give rise to the thickening and the degenerative changes in the renal vessels. The increased peripheral resistance causes hypertrophy of the heart and the muscular coat of the systemic arteries, and this is not to be regarded as a disease, but as a response to increased work. The cerebral vessels, however, being poorly provided with muscular tissue, become dilated under the constant and increasing pressure; their nutrition is interfered with; thickening and degenerative changes occur in the subendothelial tissues; the muscular coat becomes atrophied over the bulging necrotic tissue; and rupture frequently occurs. This type of degeneration, common in the aorta and the cerebral vessels, is not met with in the kidneys, in which thickening and hyaline degeneration of the intima and adventitia and hyaline degeneration of the glomeruli are the most characteristic lesions. The toxic products in the circulation are thought to be the predominant factors in causing vascular degenerations in the kidneys, while high arterial tension is considered as mainly responsible for lesions in the cerebral vessels. Intermittent strain associated with arduous occupation is doubtless responsible in many instances for the degenerative changes in the aorta with which aneurism is so frequently associated. Syphilis is an important etiological factor in a large number of cases. Microscopically obliterating endarteritis of the vasa vasorum will be found, causing localized areas of necrosis in the vessel-wall as a result of imperfect nutrition.

With a knowledge of the facts at hand the problem presented to the clinician is the removal of influences causing increased arterial pressure and the reduction of this pressure to the normal and also the elimination of toxic matters circulating in the blood, apart from prophy-

lactic measures directed to the avoidance of these conditions. Hereditary influences must receive consideration in this connection and special precautions must be taken by those in whose families arterial degeneration is known to occur. Editorial (Journal of the American Medical Association, March 26, 1904).

BERIBERI, THE URINE IN.

Metabolism in beriberi is seriously diminished. The amounts of urea, phosphoric and sulphuric acids may be very greatly reduced; it is suggested that the contributing organs—for example, the liver—are seriously disturbed in their output, which is in accordance with the fact that patients complain of illness before the onset of marked symptoms of the involvement of the peripheral nerves. The conjugated sulphuric acids and the neutral sulphur do not appear to be proportionately diminished. The purin bodies do not seem to be of great interest in beriberi; as might be anticipated, they were abundant in the critical urination of a highly œdematous case. In a number of Tamils, on comparatively liberal diet, in whom no beriberic symptoms were detected, the excretion of urea and phosphoric acid was found to be remarkably low, though their uric acid was high. H. E. Durham (British Medical Journal, February 27, 1904).

BLOOD, HUMAN, NEW BIOLOGICAL TEST FOR.

Human blood can be distinguished from that of other animals, except, perhaps, monkeys, by means of antiserum. Antiserum may be obtained by immunizing rabbits against human blood. For immunization it is most convenient to employ the blood obtained from the human placenta, which can be secured aseptically without much difficulty. From six to eight injections, of from 8 to 10 cubic centimeters each, should be made at intervals of three to five days, and the serum secured at least a week after the last injection. At the end of the immunization period it is well to test the potency of the antiserum by securing a small quantity of blood from the ear vein or any of the deep-seated vessels. To obtain the serum from rabbits for testing purposes, it is not necessary to sacrifice the animal, as sufficient serum can be secured from any of the large veins or arteries, the femoral being the most accessible. Care should be taken to have all solutions perfectly clear and the blood sufficiently dilute. The antiserum should be used pure. Control tests on blood from different domestic animals should invariably be made. With all the precautions observed, a distinct clouding within thirty minutes and a precipitate within two hours is certain evidence that the blood is human. In medico-legal cases the tests should be repeated at least twice, so as to exclude any possible error. A. Robin (New York Medical Journal and Philadelphia Medical Journal, March 12, 1904).

BLOOD, SPECIFIC GRAVITY OF THE, VALUE OF HAMMERSCHLAG'S METHOD IN CLINICAL ESTIMATIONS OF THE.

Provided the same hydrometer is used, Hammerschlag's method of estimating the specific gravity of the blood is clinically easily applied, and yields, both in health and disease, results which are uniform and reliable. An error is associated with the use of this method, which is always in the direction of an excess. The excess is, however, uniform and constant. As shown by A. G. Levy, the error may readily be obviated by the use of a specially standardized hydrometer

or by the application of the rough method of correction suggested by this observer. E. P. Baumann (British Medical Journal, February 27, 1904).

BLOOD-PRESSURE IN THE SURGICAL DISEASES OF CHILDREN.

Ether causes a rapid rise in the blood-pressure as indicated by the Riva-Rocci apparatus. This rise is followed by a very much slower fall in the pressure. Ordinary operative precedures seem sometimes to increase the pressure slightly. With the establishment of shock the pressure is lowered, but other signs of shock—the more rapid pulse, the more feeble respiration, the cold, clammy skin—are noted earlier during operations than is a drop in blood-pressure. Conversely, patients practically pulseless at the wrist can withstand operations. Crying, vomiting, retching, struggling, or changes in position affect the blood-pressure so much more than ordinary operative procedures as often to render pressure charts practically valueless, unless all these circumstances are noted. J. S. Stone (Boston Medical and Surgical Journal, March 10, 1904).

BLOOD-PRESSURE OBSERVATIONS IN SURGICAL CASES.

The value of the Riva-Rocci apparatus in determining the blood-pressure in surgical patients is limited to a comparatively small number of cases. The conditions of cerebral compression and of surgical shock produce the most marked and definite alterations in the blood-pressure. When these conditions are present and other confusing causes of alteration in the blood-pressure are eliminated, the value of the blood-pressure determinations, as an indication for or against operation, is increased. Under other circumstances the value of these observations is at present not apparent. The adoption of blood-pressure observations in surgical patients does not at present appear to be necessary as a routine measure. Report of the Committee on Research for the Division of Surgery, Harvard Medical School, January, 1904 (Boston Medical and Surgical Journal, March 10, 1904).

BURSÆ OF THE NECK, STUDY OF NORMAL AND PATHOLOGICAL CONDITIONS OF THE.

The different methods of treatment may be divided into:—

1. General and local absorbents.
2. Simple incision and drainage.
3. Drainage and the use of a local irritant to produce adhesive inflammation.
4. Partial excision of the cyst-wall.
5. Complete extirpation.

1. There is no reason to believe that the internal use of diuretics, iodides, mercurials, or other absorbents has any beneficial effect in bursal affections. The local use of absorbents, irritants, or vesicants seldom does any good, although an occasional report favorable to their use can be found. In a case which the writer reported the cyst disappeared entirely without treatment. No local application should be used that will cause inflammation or vesication, as a chronic fistula has followed too active local treatment.

2. Simple incision with drainage is of no avail. If the incision closes, recurrence is the rule; if it remains open, a chronic fistula is the result.

3. Drainage of the sac and the use of local irritants to produce closure has been tried successfully in a number of cases, but failures are also reported. In some cases a chronic suppurating fistula, with all its annoyances, has resulted. The method is a familiar one in surgery

and depends on the ability to obliterate the entire sac by adhesive inflammation. The cause of the failure seems to be that the local irritant cannot be brought into contact with all parts of the sac or that a too strong application is followed by suppuration, which persists with the development of the fistula. When it is recalled that the sac normally extends up behind the hyoid bone, narrowing as it ascends, and is usually prolonged downward to an infundibuliform prolongation, it is understood why it is not easy to obliterate the whole sac. Incision and cauterization of the wall with nitrate of silver, chloride of zinc, or caustic potash have been tried and good results reported. Solutions of iodine, carbolic acid, alcohol, and chloride of zinc have been used as injections, with varying results. Panus cured a case by injecting a solution of chloride of zinc into the sac without evacuating it. This lessens the danger of severe inflammatory reaction.

4. Partial extirpation of the cyst is unsatisfactory and not to be advised.

5. Complete extirpation of the cyst is by far the most satisfactory method of treatment, although in Boyer's time he considered it impossible. Difficulty has often been experienced in dissecting out the entire sac. Weir's method is an excellent one. He injected the sac with melted paraffin, and allowed it to harden before attempting to dissect out the sac. This method allows the cyst to be shelled out entire. W. S. Anderson (American Journal of the Medical Sciences, March, 1904).

CANCER IN AUSTRALIA.

The conclusions at which the author has arrived as the result of his investigation are as follows: Cancer is not due to a bacterial or parasitic origin: it is a constitutional disease due to a specific or malignant virus originating in the blood and chiefly manifesting itself after 35 years of age and at its greatest virulence between 50 and 70 years of age. Malignant disease may be congenital and certain forms acquired by infection or contagion. The principal factor in the cause is hereditary tendency; the principal existing factor is prolonged local irritation acting on a constitution suffering from an inherited tendency or which has been debilitated through want of treatment of one or other of the following diseases in their order of frequency: syphilis, alcoholism, obesity, rheumatism, gout, or tuberculous disease. The principal dietetic factors in the cause are sugar, beer, and alcohol, and the principal hygienic factors are woods and forests whose dropping foliage, decomposing, causes stagnation of water; also badly formed streets and defective drainage in cities, overcrowding, and badly housed and fed population of cities.

Cancer is a preventable disease, and the absolute cure is only to be found in the means for preventing its exciting causes and completely removing the same. The sanitary indigenous foliage of the following natural orders—*(a)* myrtaceæ, *(b)* lauraceæ, and *(c)* coniferæ—appears to exert a specific influence in rendering the native-born population of the countries where they grow almost immune from malignant diseases other than what might be caused by prolonged local irritation (the Australian eucalyptus, belonging to the myrtaceæ, exerts the greatest influence in this direction). A eucalyptus-oil obtained by means of a scientific preparation from various species grown in Australia possesses a specific action in arresting the pathological progress and process of malignant disease. All internal and local treatment of a poisonous or irritat-

ing nature should be absolutely avoided, more particularly such local treatment as the x-rays and Finsen's light, as they are likely to set up secondary conditions around the site of lesion. Far better is early and prompt removal when the malignant growth is accessible. G. C. Adams (Lancet, February 20, 1904).

CERVICAL ADENITIS, TREATMENT OF.

Many cases of cervical adenitis will be seen in which the avoidance or minimizing of scar is of great importance, and in which radical operative measures are not demanded. In such cases aspiration, or the use of a seton, or both, while not infallible, may prove successful. While such measures might be successful in cases of tuberculous glands, they are attended with possible dangers, and when the tuberculous glands do not subside under medical treatment, excision, done with extreme care and reasonably early, is the method of choice. Neither aspiration nor the use of a seton should be resorted to in cases involving the deep cervical glands. F. S. Bulkeley (American Medicine, February 27, 1904).

CERVICAL RIB.

Cervical rib may exist without producing symptoms. When present, the symptoms are local and functional. The local symptoms are a hard prominence above the clavicle and a visible pulsation high in the supraclavicular fossa. The functional symptoms are circulatory and nervous. The principal circulatory symptoms are feebleness or absence of the pulse, coldness of the extremity, at times cyanosis, and œdema. The principal nervous symptoms are pain in the distribution of the brachial plexus, together with paræsthesias, such as numbness and formication, and awkwardness in the use of the hand; in some cases weakness and atrophy. In cases of brachial neuralgia the possibility of the presence of a cervical rib should be considered. The treatment, except in the mildest cases, is excision of the rib. This was done in twenty-two out of forty-six cases, and in the majority with success. David Riesman (University of Pennsylvania Medical Bulletin, March, 1904).

CERVIX, LACERATION OF THE.

The writer's practice is to suture cervical injuries at the close of labor when they seem to be the cause of postpartum hæmorrhage; to sew up all cervical tears in the first week in conjunction with the perineal operation when the pelvic floor injury is of such character that a few days' delay is desirable, and to restore severe injuries to the cervix from the third to the tenth day after delivery. R. L. Dickinson (New York Medical Journal and Philadelphia Medical Journal, March 26, 1904).

CHOLESTEATOMA OF THE MIDDLE EAR.

1. From the point of view of anatomopathology the writer has studied two sorts of formations of the middle ear under the name of cholesteatoma. One made up of granular, fatty, and purulent masses of *detritus*, with some scaly epithelia, keratin, and crystals of cholesterin: the other really formed by imbricated nodules, concentrically arranged like the bulb of an onion; nodules made up in turn, microscopically, of large, flat, endothelial cells, polygonal in shape, which show scarcely any colored nucleus, and which masses contain a large quantity of cholesterin.

2. The majority of cholesteatomata described heretofore evidently belonged to the first group of the first conclusion. These masses, which may be called choles-

teatomata, and might better be called purulent, degenerated, epidermoid, etc., according to their constitution and origin, must not be classed as true cholesteatomata. One should distinguish them in future so as not to fall into any error.

3. One must not class as cholesteatomata those masses, made up of polystratifications of keratinic epithelial cells, which develop after general inflammatory skin eruptions when they act on the lining of the auditory cavity, and which are horny or keratinic formations, never true cholesteatomata.

4. Cholesteatoma may be considered as a pearly endothelium or not, as the cells are charged with cholesterin by secretion or by degeneration of their protoplasmic masses.

5. The causes of error once distinguished in the preceding conclusions, and in virtue of the conception of cholesteatoma detailed above, the writer holds that true cholesteatomata of the middle ear are those only which are made up of superposed endothelial cells, forming balls in certain cases, and which have scarcely any colored nuclei, and where the protoplasm is filled with cholesterin; that is to say, those formations comprised in the second group of his first conclusion.

6. Nearly all of the cholesteatomata of the ear described in the books and journals belong to the first group of the first conclusion and to that of the third. It is not difficult to show that the middle ear presents at certain points an endothelial covering. It may be possible, although rare, to meet with cholesteatoma.

7. The clinical discovery of a cholesteatomatous formation in the middle ear should be followed by a minute anatomo-pathological examination to determine the nature of the masses found. Only then can an accord between the clinical and the anatomo-pathological findings be arrived at, and observers cease to regard as cholesteatomata those clinical cholesteric-appearing masses which, in reality, from the pathological point of view are different.

8. The new formations comprised in the third conclusion are malignant from the start, since they are capable of producing a perforation and the consecutive troubles.

9. Intervention should be so extensive that it will cause extinction of the process, etc.

10. In a case where it becomes necessary to make a large opening in the attico-antral cavity it should be made permanent during a period proportional to the size of the neoplasm, in order to watch for a reproduction. Lucien-Barajas; translated by W. S. Mills from Revue Hebdomadaire de Laryngologie. d'Otologie, et de Rhinologie (Journal of Ophthalmology, Otology, and Laryngology, January, 1904).

CONSUMPTION AND PNEUMONIA.

In the United States in 1899, 105,971 people died of pneumonia, as against 109,750 who died of tuberculosis of the lungs. As comparative numbers, they stood appallingly close together. But even in the matter of human life there may be economic differentiation. Economically it is a fact of tremendous significance that 33,807 of the victims of pneumonia were less than 2 years old—human lives, it is true: infants who might have had vital bearing upon the future of society and State. Yet from the economist's point they were physical weaklings upon which little had been spent. But what of tuberculosis? It is of inconsiderable peril until the age of 10 years. Between the ages of 15 and 19 years, however, its black shadow has eclipsed that of pneumonia, and between

the ages of 20 and 24 years it has reached its maximum in 16,031 deaths in one year. Human lives? Yes, lives that are just equipped for the beginning of life and living—lives upon which the maximum had been spent in preparing for life. For 1899 the census showed 24,905 deaths between 5 and 45 years from pneumonia as against the 72,960 from tuberculosis. At the flood-tide of life phthisis takes three times as many people as pneumonia. But of the 24,905 victims of pneumonia, there are other facts of vital bearing. Broadly speaking, the victim of pneumonia is a weakling. The reports of the census show that from 55 to 70 years there is an increase in deaths from pneumonia with a more than corresponding decrease from tuberculosis. (Chicago Tribune; Medical News, March 26, 1904.)

DIABETIC ALBUMINURIA, GLYCOGEN IN.

The writer calls attention to the value of glycogen in the treatment of diabetic albuminuria. He recalls the fact that last year he was led to conclude that the hepatic cell in diabetics seemed to have lost the power of fixing glycogen in its cytoplasm. His researches have since been confirmed by Monier, of Liège. This brings to mind the fact that Frerichs many years ago, having obtained by trocar from a diabetic patient a parcel of hepatic tissue, ascertained microscopically the absence of glycogen in the hepatic cell. Albuminuria is a grave complication of diabetes and requires active treatment. Unfortunately, this symptom and diabetes are, as it were, antagonistic, the former requiring a milk diet, or at least a diet rich in hydrocarbons; the second, on the contrary, demanding a diet from which are excluded as much as possible starches and sugars. Again, considering the condition of the kidneys in diabetics, certain remedies now used, antipyrin and other toxics, cannot be employed. The writer found that the methodic use of glycogen seemed to avoid this difficulty, and mentions a number of cases with charts to sustain his point. The dose administered began, as a rule, with 1 gramme (15 grains) in the course of the day. M. Laumonier (Bulletin Général de Thérapeutique, January 15, 1904).

FACIAL NEURALGIA.

Probably no class of cases is more pitiable than those of the patients who come complaining of severe paroxysmal facial neuralgia, for which ordinary drugs give no relief. In the last twenty-five years at least a dozen different operations, each one of them more severe and more dangerous and presumably more radical than its predecessor, have been devised for the purpose of curing such neuralgias. All the various nerves of the face have been divided farther back at each successive operation until finally even the skull has been opened and the Gasserian ganglion removed. Needless to say this is an extremely dangerous operation. Even in the hands of experienced surgeons many patients have perished from it.

Very few physicians in practice in our large cities have failed to see some of these cases in which a number of operations have been done, each one affording relief for some time, but always followed by recurrence of the painful attacks. Even the removal of the Gasserian ganglion has not proved absolutely curative in a certain number of cases, and patients with marks of having had a large osteoplastic resection of the skull performed are still going to clinics complaining of their awful attacks of pain in the face. Usually they become the victims of the

morphine habit, but even morphine fails to give relief after a time, and the coal-tar products are abused to an awful extent by them. Some few of these cases have yielded very surprisingly to quinine. Whenever there is a regular interval between the attacks of pain no physician or surgeon should think of recommending an operation until quinine has been tried. Even when the paroxysms come irregularly, if there is a history of the patient's having had malaria, quinine must be tried over long periods.

These cases constitute one of the most serious opprobria of modern medicine and surgery. It is extremely interesting, therefore, to find a new possible explanation of the origin of the pain and relief afforded by another form of treatment, which by no means involves very serious operation. At the last meeting of the Medical Society of the State of New York, Dr. Sargent F. Snow, of Syracuse, reported a series of cases of tic douloureux and other facial neuralgias which had been cured by treatment of the intranasal structures and of the accessory sinuses of the nose. In the discussion Dr. Roe, of Rochester, said that his own experience confirmed that of Dr. Snow, and he felt sure that in most cases relief would be afforded by proper intranasal and auxiliary treatment. As in some of these cases serious operations upon nerves had already been performed with only passing success, these suggestions deserve the attention of all those who have these unfortunate patients come under their observation.

It is not difficult to understand that pressure within the nose itself and within the accessory sinuses may very well set up a very obstinately intractable form of paroxysmal pain. Extremely delicate nerve-endings are pressed upon by fluid collections under pressure, and the result is sure to be painful nerve explosions. Whether these pathological conditions associated with the nose and its sinuses will explain all of the cases of tic douloureux remains to be seen. They certainly do include, however, a good many cases formerly thought to be facial neuritis of some form, and the apparently more enduring relief that can be afforded under the new and more correct diagnosis is of itself sufficient to make this a noteworthy advance in medicine, if further experience will confirm the observations so far reported. Editorial (Medical News, March 26, 1904).

FORMALDEHYDE, THE USE OF, AS A PRESERVATIVE IN URINE.

Formaldehyde as an artificial ingredient of the urine will lead to deceptive results in uranalysis by *(a)* making the urine appear albuminous when it is negative; *(b)* not giving a typical reaction when albumin is present. The reliability of Introna's test—namely: the use of formaldehyde in albuminous urine as a reagent—is to be questioned, inasmuch as the effect of formaldehyde on negative urine is the same, though to a more marked degree, as that on albumin in solution, the difference in the color and density of the precipitate being, in the writer's opinion, immaterial. As a factor in the production of a possible pseudo-albuminuria the therapeutic use of urotropin is a subject well worthy of extended observation and study. F. W. Kenney (New York Medical Journal and Philadelphia Medical Journal, February 27, 1904).

FOUNDLINGS' MORTALITY, DECREASE OF.

The solution of one problem in sociology or the kindred department of sociological pathology is almost sure to introduce another one of almost as great

importance as the first, though its occurrence is usually quite unanticipated. This seems to have occurred with regard to the question of infant mortality in several attempts at its improvement in late years.

It is well known that the custom of insuring the lives of children under 1 year of age, for the purpose of enabling parents to have enough money to bury them in case death should take place, has been followed, especially in England, where the custom was at one time very common, by a distinct increase in the proportionate mortality of insured infants as compared with the uninsured. At first it was hoped that the insurance would be a distinct benefit for family life. Poor parents almost beggar themselves and frequently starve their children for a time in order to meet the funeral expenses of a dead member of the family. This evil it was hoped life insurance on children would prevent and might even ameliorate family conditions generally by leaving less room for anxiety. In order to prevent the increase of mortality that was noted, however, strict legal regulations had to be enacted with regard to insurance on children's lives, and the infantile feature of life insurance development was practically obliterated.

A condition not entirely unlike this has developed recently in some of the large cities of this country as the result of the present well-meant efforts to save the lives of foundlings. As is well known, the death-rate among foundlings kept in large institutions is very high. When in addition to the risks of institution life there is artificial feeding, very few of the children survive infancy. In some places the state of affairs which developed was so dreadful that it well deserved the name invented for it by a caustic German physician: *"Engelmacherei"* (angel-making). In recent years, as the result of farming out infants to wet-nurses, the death-rate among foundlings has been very materially decreased. As a matter of fact, according to some recent statistics there would seem to be less mortality among foundling children thus farmed out than among the general run of the infantile population. We fear, however, that in this matter at least there has been some juggling with statistics, and that the figures given are those prepared for the purpose of producing an impression upon boards of charities or legislative committees.

Now comes the interesting *contrecoup* to the decrease in foundling mortality. Those who are most closely in touch with the poorer classes of the population,—mainly Italians, Bohemians, and certain Russians and Germans,—who now accept the care and wet-nursing of infants for a consideration, have been led to the impresssion that at times not sufficient care is taken of the children of the family itself, there being a definite knowledge that in case of the death of their own infant the mother will be able to add quite an important increment to the monthly wage of the family by acting as a wet-nurse for a foundling. This seems an entirely inadequate motive to suggest for a maternal neglect of her own child, especially by a woman only recently become a mother and as yet nursing. This is, however, just exactly the state of affairs that was found to exist in England as regards infantile insurance in cases where there was even less money involved. When infants are sickly and require a great deal of care, it is rather easy for a mother to neglect them sufficiently for death to take place, yet without absolutely resolving that she will shorten the life of her child. When,

then, there is the additional motive that she will have another infant to care for and be well paid for it, neglect may very readily take place.

It seems certain that the mortality among foundlings adopted by poor families is less than that among their own children. This, however, has been claimed to be due to the fact that when foundlings are placed in a family the family is in many cases visited regularly by a trained nurse who suggests to the foster-mother the various precautions necessary to preserve the health of the child, or the infants must be brought for regular examinations, when suggestions are made. It is understood, too, that in case the foundling does not do well in the family it will be taken away. This regulation especially is said to act as a wonderful help in securing the exercise of due care for the child. It seems unfortunate that some of this helpfulness of modern science cannot be exerted for all infants as well as the foundlings, and thus far it has been difficult to secure proper attention to advice with regard to such matters.

It would seem that some of this experience with regard to the foundlings and their presence in families may of itself have a highly educative value in bringing up mothers to the proper recognition of up-to-date methods in the care of their own children that will eventually compensate for the increased mortality now apparently due to the prospect of having a foundling to care for and being paid for it.

This is the most hopeful feature of the present outlook. The system established by the former Commissioner of Charities in New York City for the care of our foundlings has undoubtedly done very great good and saved many infantile lives. The problems in sociology, however, which it has brought up are deserving of careful study, and will prove a fruitful source of material for the development of significant ideas with regard to the improvement of the condition of the poor. Editorial (Medical News, March 26, 1904).

GALL-BLADDER AND BILE-DUCTS, DISEASES OF, DUE TO GALL-STONES: INDICATIONS FOR THEIR SURGICAL TREATMENT.

No operation should be performed in cases with mild symptoms, especially if the diagnosis is in doubt; cases with recurrent mild attacks with long intervals of health; acute obstruction of the common bile-duct; any disease which would contra-indicate a surgical operation of any kind unless under vital indications.

Operative interference is indicated in acute inflammatory diseases of the gall-bladder with signs of severe infection or peritoneal invasion; in cases with very frequent mild attacks, which incapacitate the patient from work, which are accompanied by much loss of flesh and strength, or in which the patient is in danger of acquiring the morphine habit; in persistent biliary fistula; in rare cases in which the symptoms are due to adhesions of the normal gall-bladder to neighboring organs; in chronic obstruction of the common bile-duct.

It is probable that, in the future, medical men will agree upon more early and more radical treatment of many cases of gall-stone disease, and that the removal of the gall-bladder—the *fons et origo* of gall-stones in the vast majority of cases—will be done more often. The indications for cholecystectomy will hence be much extended, and operations upon the common bile-duct become of necessity less frequent. C. A. Elsberg (New York

Medical Journal and Philadelphia Medical Journal, March 26, 1904).

GASTRIC DISEASE IN THE ADULT, CONGENITAL NARROWNESS OF THE PYLORIC ORIFICE A CAUSE OF CHRONIC.

There exists a considerable class of patients in young adult life who owe their chronic gastric trouble to a congenital narrowness of the pyloric orifice. This "narrowness" is due in many cases to an undue development of the pyloric valve lessening the caliber of the orifice to anything between the normal of twelve to fifteen millimeters and two or three millimeters. The proper treatment is gastro-jejunostomy, performed with due regard to the normal disposition of the parts after operation. A. E. Maylard (British Medical Journal, February 20, 1904).

GONORRHŒA IN THE MALE, TREATMENT OF.

With regard to the methods of *abortive* treatment, no doubt, if used early enough, they may be effectual—*i.e.*, within a few hours after contagion. But how many patients with gonorrhœa come under treatment under twenty-four hours? They cannot even know by that time if they are affected. The abortive cures claimed by Janet and others, on the strength of beginning treatment before there is any discharge, but simply swelling of the meatus, are open to this objection: How is it known that they are cases of gonorrhœa? It is well known that men may contract a slight anterior urethritis and swelling of the meatus, which subsides either by itself or with simple astringents. It is obvious that such cases cannot be excluded from any so-called abortive treatment. Of course, it may be urged that gonococci were found in the secretion, but the author does not believe that we know enough about the gonococcus to say that it is always the cause of gonorrhœa. On the other hand, we know perfectly well that a urethritis in which no gonococci are found may run the same course, and may lead to all the sequelæ of gonorrhœa. Hence the author does not place much reliance on the abortive treatment, and in this belief he is in accordance with Professor Finger, who is probably the best authority on this subject.

As regards local treatment, injections of protargol, followed by astringents, such as chloride or acetate of zinc, are best. These should not be begun when there is great swelling of the meatus and mucous membrane, but this period should be tided over by rest, aperients, and salines, and hot baths, with 5 grains of salol thrice daily. Irrigation is irksome both to the patient and the surgeon, and can only be carried out by the latter. The best internal drug is salol in all cases, but resin of copaiba is said to give good results.

Concerning chronic gonorrhœa and gleet, the author is of the opinion that treatment is overdone. This has been chiefly due to the introduction of the urethroscope. If a urethritis does not get well in a short time, this instrument is often employed, sometimes on the initiative of the surgeon, at other times at the patient's own request. Many patients have heard of this instrument, and insist on its being used. As a matter of fact, the use of the urethroscope has been overdone. It is true that it is of value in certain cases, but, when used as a routine method, it is apt to do more harm than good by pushing back the discharge into the membranous urethra. The same applies to the introduction of all instruments into the urethra. Hence the

writer recommends all instrumental methods to be avoided except in very chronic cases—*i.e.*, cases not yielding to several months of rational treatment. C. F. Marshall (Treatment, February, 1904).

GRAVES'S DISEASE AND ITS RELATION TO THE PSYCHOSES.

While authorities are uniform in their statement that there is no characteristic psychosis complicating Graves's disease, yet their experience coincides with the author's that in over three-fourths of the cases types of mania are found. The physical symptoms of Graves's disease when accompanied by some mental disturbance are no different than when such a complication does not occur.

Graves's disease is practically always indicative of a neurotic temperament, and the physical and mental symptoms are both evidences of the same neurotic vice. Thus can either scarcely be spoken of as a complication of the other, but rather insanity considered as a further development of the neurasthenic and hysterical conditions observed in even the mildest cases of Graves's disease—the psychosis developing in the more unstable. It would seem that while Graves's disease complicates and usually aggravates the mental disease, yet in the average case it does not make the prognosis less favorable. A. W. Rogers (Medicine, March, 1904).

HÆMORRHAGE, ACCIDENTAL.

The writer reports a case of pregnancy following a ventrosuspension of the uterus after Kelly's method. The pregnancy went to full term. Hæmorrhage occurred twice before full term, including an accidental hæmorrhage. A postpartum hæmorrhage followed delivery. M. A. Tate (Cincinnati Lancet-Clinic, February 27, 1904).

HAY FEVER, SERUM TREATMENT OF.

The author states that, while the small number of cases presented is hardly sufficient to base accurate conclusions thereon, yet he desires, as the result of the experience obtained with the goldenrod antitoxin, to suggest that the serum produces prompt and positive amelioration of the symptoms of fall hay fever in the majority of cases. In a smaller number this favorable result is soon accompanied with the complete disappearance of the affection. Where slight or no action is seen after its use, pollen as an etiological factor does not predominate. When results are obtained, it favorably influences all the manifestations of hay fever. While the author is unable to state from personal experience the effect of the serum upon hay fever occurring at other times of the year, or its effect when administered in advance of the attack, yet when given during the attack irrespective of its severity, it produces marked palliation rather than absolute cure. Its effects upon future attacks remain as yet unknown. The serum in powder form is slightly soothing to the nasal mucosa, has but little influence upon the other symptoms of the affection, and in occasional cases it may act as a direct irritant. Finally, as a result of larger experience, especially with hay fever occurring at other times of the year, it may become necessary to modify some of the opinions in regard to this antitoxin. L. S. Somers (Medicine, March, 1904).

HEAD INJURIES, AFTER-EFFECTS OF.

While some degree of mental impairment is comparatively common after in-

juries to the head, the changes are seldom sufficiently marked to be included under the heading of insanity. Insanity may result from injury to any part of the head. Traumatism leads to insanity in two ways: (1) direct insanity due to the actual injury to the brain or its membranes apart from hereditary or other predisposing causes; and (2) indirect insanity—that is to say, any form of insanity occurring as the result of lowered resistance of the brain due to injury in patients with a predisposition to insanity, hereditary or otherwise. Every variety of mental change may be produced by traumatism, although some forms are commoner than others. It is at present undetermined whether injury to the prefrontal region is more likely to be followed by mental disturbances than injury to other parts of the brain. Only a small proportion of the cases of traumatic insanity are open to relief by operation, for a localizing indication in an accessible region must be present. The results so far have been encouraging, and, although the operation must necessarily be exploratory, it is fully justified in suitable cases, especially in face of the otherwise hopeless condition of these patients. T. C. English (Lancet, March 5, 1904).

HEART, THE MOVEMENTS OF THE.

The study of the movements of the heart has proved during the last few years to have a great fascination for physiologists and physicians; and it is not difficult to see why this is so. In the history of medicine, as in the history of all natural knowledge, we find that discovery is not a product of genius alone, but of genius multiplied by time and occasion. On reasonable time it depends whether the spring of genius shall wither in blight or drought or ripen into the summer of fruition. Had Harvey been born in the thirteenth century he, like the author of the *Opus Majus,* might now have been but a ruin in the wilderness: a relic uncovered by the spade of the scholar. Happily, the great lights of Gilbert and Galileo shone before him; and that of Newton on his setting. From Harvey's time to our own there have been men of science to see that in the sphere of the circulation the positive methods of physics may measure themselves not unequally with the mystery of life. In our own day the school of Ludwig has kept the lamp burning, and penetrated more and more deeply into the subtle mechanism of that wonderful automaton, the heart. Harvey doubtless was a good physician, but it is as a physiologist that he is great; and it is to physiologists now that we owe most of our knowledge of the circulation. By their training in method and precision the functions of the circulation are interpreted, and few physicians have their ability. Yet it is by physicians that scientific discoveries are to be turned to service in dealing with the perversions of disease and the frailties of decay, and to a few physicians who, like Dr. James Mackenzie, are skilled in physical methods, we look, and do not look in vain, for transitional studies by which a bridge may be built between the researches into the science and the practice of the art of medicine.

Tracings of the pulses of the heart and vessels are often difficult to obtain by any instrument. Many are published which signify nothing except the inability of the instrument to record the movements to which it is vainly applied. Still more frequently the movements are such as the instrument might in skilled hands have recorded; but most hands are unskilled. A sphygmograph needs as many

dexterities as a cricket bat. In the best hands the records differ not only on different persons, but also on successive applications to the same person. Dr. Mackenzie shows that in this technical part of his equipment there is nothing lacking. His curves tell us as much as in this way can be told. But here is the rub! What is to be the interpretation of these fragmentary registers? Dr. Mackenzie knows better than most of us that if his curves are correct his interpretations may be fallible. For example, for true interpretation we must have a *point de repère.* Thomas Coryat, whithersoever he roamed, calculated his distances from Odcombe, his home in Somerset—an inconvenient benchmark no doubt, but still a definite one. Now Dr. Mackenzie will admit that in many of his curves the instrument gives him no benchmark, so he has to make one—arbitrarily. He has to set down his *a* or his *v* as seems to him best, and he takes off from this; and small blame to him. But his readers must have a like benefit, and as arbitrarily fix their own benchmarks, it may be at other loci in the heart's circuit.

Mackenzie suggests that in some cases the auricle was so full of blood as to be unable to contract upon its contents, and thus to initiate the ventricular contraction, by "Gaskell's bridge," on which, as the author says, Professor Allbutt has insisted. Wenkebach, however, leans to this latter interpretation. We recommend to Dr. Mackenzie two experiments: If a striated muscular fiber be made taut and then stimulated it will be seen that even in this state it can propagate stimulus to a free fiber; and, again, if a right auricle be gorged with fluid by means of a syringe till, even by the tonometer, no contraction can be detected, and now the auricle be stimulated, it can and does propagate stimulus to the ventricle. Let it not be said that herein we are begging the question that the ventricle may have started an independent rhythm, for cut away then the venous sinus, and, although the auricle is relaxed, all contractions will cease at once. Dr. Mackenzie admits that the behavior of the heart in tachycardia is difficult to bring into accord with his views; but into this we have not space to enter.

Dr. Mackenzie has proved himself a laborious, able, and ingenious worker; he opens new problems and excites us to test his propositions to the utmost. We are far from asserting that his propositions are wrong, and in any case we help each other to tease out these perplexities. Editorial (British Medical Journal, March 5, 1904).

HERNIA IN YOUNG CHILDREN.

The indications for operating on hernia in early life may be tabulated as follows: Strangulated hernia—immediate operation. All cases not controlled by truss. Occasional protrusion with threatened strangulation. When truss-wearing causes pain. On children that cannot be brought regularly for attention. In all cases of femoral hernias. On all children over 7 years of age. W. B. de Garmo (Medical Record, February 13, 1904).

HYDROCEPHALUS, SURGERY OF.

Excessive secretion of the cerebral meninges may occur in any form of animal life. The various forms of vegetable life are subject to excessive local or general secretion to a fatal degree. Hydrocephalus, ventricular or meningeal, may develop in the uterus or at any time throughout infant or adult life. The number of cases of spontaneous recovery in either is probably numerous, espe-

cially in infant life where the arachnoid is alone involved. All cavities may unite with or without external rupture; when so, it is usually fatal. Spontaneous rupture may occur externally or subcutaneously with an occasional recovery. The effusion may be into the lateral, third, or fifth ventricle, or it may be in the arachnoid cavity, one or all. A clot in the arachnoid cavity may cause a cyst which will enlarge, with all its consequences. Syphilis and rickets have been assigned as causes of hydrocephalus, but such have never been proved: the cause is yet unknown. Sometimes zones of new osseous material are seen scattered here and there in the meninges and sometimes upon or in the brain itself. The septum incidum is invariably thickened, as are the cerebral meninges in general. It is probably the greater number of cases of hydrocephalus, whether of the third or fifth ventricle or of the arachnoid variety, that can be cured by some form of drainage. Continuous drainage by seton or the repeated use of the trocar has given the better results in the way of benefit or cure. Spinal drainage has been practiced to but a very limited degree and is, as yet, very undetermined. Subcutaneous drainage has not as yet resulted in a cure, but there seems to be many possibilities for this method. Trephining for drainage is only resorted to in cases where the fontanelles have been closed by bony union. Results from drainage are more favorable if it is done when the presence of fluid is first detected. It is sometimes necessary to drain both hemispheres, together with the right and left cerebellar cavity. The secret of curing arachnoidal hydrocephalus by drainage probably lies in obliterating the arachnoid cavity. However, this can hardly be so with hydrocephalus of the third, fourth, and fifth ventricular variety. The cardinal principle in this, as in all operations upon the brain, is asepsis. B. M. Ricketts (American Journal of Surgery and Gynæcology, March, 1904).

INTESTINAL INFECTION.

The writer emphasizes the following points: The unexpectedly great prevalence of the dysentery organism in cases of diarrhœa in infants, at least during the summer months. All types of diarrhœal disease, as characterized in their clinical symptoms, are to be found among these cases. As compared with cases of "summer diarrhœa" of other years, those in this series were in general much milder; and possibly this was due to two factors: *(a)* the cool summer; *(b)* the increasing knowledge among the tenement population of the care of infants and their food. The number of breast-fed infants, 14 in 62 cases, more than 20 per cent. of all, is striking. The serum treatment was not given in a sufficient number of cases to warrant any conclusions. While of apparent benefit in some cases, there were others in which no effect whatever was noticed. It may be that larger dosage is necessary; but, if so, the serum must be more concentrated than at present. L. E. la Fétra and John Howland (Medical News, March 12, 1904).

IRON, MODERN PHARMACOLOGY OF.

In choosing a form of organic iron for internal administration one should be selected which is of definite chemical composition; does not precipitate with a silver nitrate solution; does not give the blue-black color with MacCallum's test; is not decomposed by the hydrochloric acid of the gastric juice, and shows definite results in *(a)* an increase

in the number of red blood-corpuscles and *(b)* in the amount of contained hæmoglobin. R. W. Wilcox (American Medicine, March 12, 1904).

KIDNEY, DECAPSULATION OF: CONCOMITANT INTRA-OCULAR COMPLICATIONS IN THE CHRONIC FORMS OF NEPHRITIS.

The operation of decapsulation so far is not warranted in all instances, nor does it offer any hope in cases of bilateral chronic nephritis with retinal complications. Though there is an improvement in the eyeground directly after the operation, still it is decidedly temporary, judging from the present statistics. The operation may be of service in unilateral nephritis with fundus lesions in the initiatory stages. These cases, however, are rare, and, if found, soon become bilateral. Therefore these latter cases would come under the first remark.

The mortality rate for albuminuric retinitis in chronic nephritis has not been lessened by the operation. The statistics show that retinal complications are a decided index as to the severity of the kidney involvement. In nearly all the cases of nephritis chronica the cardiac involvement is present and is an important prognostic factor. With the retinal lesion it is usually present. Unilateral retinal lesions are the exception in chronic nephritis. As yet the medical treatment of all these cases yields as good results, if not a trifle better, than the kidney decapsulation. Statistics of the mortality rate of albuminuric retinitis based on urethral catheterization are indicated. This is to determine whether those that outlive the two-year period might be cases of unilateral nephritis or are late in becoming bilateral. G. F. Suker (Journal of the American Medical Association, February 27, 1904).

LEUCOCYTOSIS, EXPERIMENTAL TOXIC.

The injection of putrid horse-serum causes a primary hypoleucocytosis, in which the polymorphonuclear neutrophiles are diminished and the mononuclear elements increased, followed by a secondary hyperleucocytosis which is characterized by *(a)* a great increase in the polymorphonuclear variety; *(b)* an appearance of cells on the borderline of myelocytes, as well as an actual presence, in the severe cases of leucocytosis, of mononuclear neutrophiles in small numbers; *(c)* a deficiency of hæmoglobin, which was found in 60 per cent. of the dogs experimented upon, associated with an appearance of normoblasts in the blood.

There is no definite relation between the leucocytosis and the rise of temperature; the grade of the leucocytosis is not proportionate to the height of the temperature, and the maximum rise in one occurs independently of that of the other.

Inhalations of amyl nitrite and injections of potassium nitrite cause a primary hyperleucocytosis in a very short time, due probably to the dilatation of the capillaries.

Potassium nitrite administered before the injection of peptone lessens the duration and the extent of the disappearance in the number of the leucocytes during hypoleucocytosis, and thus disproves that the leucocytes are destroyed, as Löwit supposes.

The results of the foregoing experiments lead to the belief that the decrease in the number of the leucocytes in the beginning of leucocytosis is due to their obstruction and imprisonment,

caused by the narrowing in the lumen of the capillaries, owing to the irritation of the endothelium by foreign toxic substances. J. G. Silverman (University of Pennsylvania Medical Bulletin, March, 1904).

NASAL DIPHTHERIA, THE IMPORTANCE OF EPISTAXIS IN THE DIAGNOSIS OF.

Staining of the nasal discharge with blood is quite commonly seen in nasal diphtheria, and epistaxis of moderate severity is not infrequently observed. Nosebleed is a symptom of much diagnostic value, for it may suggest the possibility of nasal diphtheria in any case, but particularly in the dangerous (to the community) mild case. Among the causes of epistaxis diphtheria of the nose should be accorded a separate and prominent place. In malignant, mixed, or streptodiphtheria (Northrup) of the nose epistaxis may be most alarming and may even be the immediate cause of the fatal termination. J. H. McKee (Therapeutic Gazette, March 15, 1904).

NEURALGIA AND MYALGIA, TREATMENT OF.

The writer recommends hydroquinine in doses of 1 to 4 grammes (15 to 60 grains) daily in these disorders. It proved valuable for the removal of pain in cases in which other analgesics have been used in vain. No untoward after-effects were noticed. In articular rheumatism, however, the drug proved useless. E. Meyer (Berliner klinische Wochenschrift, February 8, 1904).

NEUTROPHILE LEUCOCYTES IN INFECTIOUS DISEASES.

An article containing claims of a very revolutionary character has been published by J. Arneth (Deutsche medicinische Wochenschrift, January 21, 1904), with reference to the previously accepted notions of positive and negative chemotaxis for the neutrophile leucocytes. He believes that the importance and value of leucocytosis have been misunderstood, and explains the phenomenon by asserting that the process is due to the destruction of the neutrophile leucocytes, the extent of which is dependent on the degree of infection or intoxication, the resisting powers of the organism, and a number of other factors. The author has made an extensive investigation of leucocytosis by the aid of a new technique, which, however, is not revealed at present. This shows that the number of leucocytes is no criterion as to their actual normal or abnormal condition. The condition of the nucleus is the deciding element, and according to its character the leucocytes may be divided into five classes. "Cytosis" is the new term applied to these various conditions, and he distinguishes between iso-, aniso-, hyper-, hypo-, and normo- cytosis. In infectious diseases there is an aniso-hypercytosis (equal and unequal). The investigations also show that the relations between the various forms of leucocytes are much simpler than in the old classification. It is also claimed that the neutrophile leucocytes are the producers, but not exclusively, of the antibodies. Further and more elaborate details are promised in a new book about to be published by the same author. (Medical News, March 26, 1904.)

OVARIES, THE EFFECTS OF REMOVAL OF THE.

Much continues to be heard from both professional and lay sources as to the baneful effects of this procedure. It has seemed to the writer that there should be no excuse for the present di-

versity of opinion among the profession, but the laity could be excused for clinging to the notions instilled into them by uninformed or ill-informed physicians of twenty years ago. A careful study of recent authoritative gynæcological literature, however, shows abundant reason for the lack of professional unanimity, for authors themselves differ widely. It is in the hope of aiding ultimate unanimity that the author ventures to outline his opinions after careful observation of many cases and a study of the literature of the subject.

There seems little doubt that the ovary performs a dual function: first, the maturation and periodical discharge of ova for race procreation; second, the elaboration of an ill understood, but plainly manifest, internal secretion, which in some manner, probably through the sympathetic nervous system, presides over the metabolism and nutrition of the uterus. The first of these functions is fairly open to study. Even a macroscopical examination of an ovary will often decide its ability or inability to perform the function of ovulation. We are, however, entirely dependent, thus far, upon clinical manifestations in judging of the integrity of the second function.

The ability or total inability of the ovary to produce ova apparently exerts but little influence upon the woman's general health, and it is often a problem which defies solution by even the most expert to say whether sterility is or is not due to absence of ovulation. On the other hand, the second function, of which we know so little, seems to manifest its absence or deficiency by signs as plain as the handwriting on the wall: for example, the amenorrhœa, the uterine atrophy, and the "hot flushes." That the amenorrhœa is not the result of uterine atrophy is plain, as it often precedes this latter by several months.

It seems to the writer that the second function, and that alone, is to be considered as to the effects to be expected in the *persona propria* of the woman whose ovaries are removed. Sterility will, of course, result; but the question of the right or wrong of the total extirpation of ovaries capable even in part of normal ovulation is aside from the present question. Throughout the entire body marvelous mechanisms of compensation exist, so that any lesion is worse just in proportion to the suddenness of its inception and the lack of opportunity for the establishment of salutary compensation. Moreover, practically all organs which are avowedly elaborators of internal secretions are provided with what might be termed autonomous powers of compensation. In other words, a very small proportion of their entirety will satisfactorily supply quite sufficient of the internal secretion to maintain the normal equilibrium. Witness the removal of all but a comparatively small proportion of the thyroid gland without producing subsequent myxœdema; of all but a very small portion of the pancreas without diabetes or fat necrosis; and of all but a twentieth part of the normal volume of the suprarenals without grave circulatory disturbance or death. And thus we assume it to be with the ovary. As examples might be cited the many cases of bilateral ovarian cystomata which have been removed in which scarcely a trace of ovarian tissue could be found and in which certainly no ovarian tissue remained to the woman after the operation, and in which the manifestations of the suddenly induced menopause were entirely lacking. This is evidently the result of the ovarian loss being so

gradual as to permit nervous compensation.

The effects produced upon the nervous system and the metabolism and nutrition of the uterus by the total bilateral extirpation of the ovaries is the analogue of the diabetes following pancreatic destruction or removal. And had this analogy been complete, had total ovarian extirpation been as universally fatal as total pancreatic removal, gynæcologists would long ago have learned how safely to conserve the small portion of ovarian tissue necessary to the adequate continuance of the internal secretion. It should be learned now. More careful observation and more thoughtful study are going to dispel the mystical haze which still surrounds ovarian extirpation, and the sentimentalism now propagated by a large proportion of the profession and greedily grasped by the laity is going to give place to sound scientific knowledge, which shall by force of inherent truth carry conviction even to the laity.

One further point which deserves the most emphatic statement, and which anyone of experience can verify, is the fact that it is the diseased condition of the ovary for which it has been removed which temporarily abates or destroys sexual desire, interferes with general and nervous metabolism, and not the curative operation *per se*. In exceptional cases the pelvic viscera have been so profoundly diseased and the operation has been so long deferred that any restoration of function in any of the sexual organs seems hopeless; but careful investigation shows that it is overwhelmingly the rule for normal sexual desire and ability of gratification to return after the total removal of diseased ovaries and to be still normal four, six, and even ten or more years after the operation. Likewise, the excessive accumulation of fat is the exception, and not too common to be considered the proof of the rule. Persons long ill with ovarian disease have, of course, lost flesh, and the removal of the disease naturally leads to the resumption of the normal nutrition, with the consequent filling out of the fat spaces, exactly as occurs after typhoid fever or any other long illness. The patient merely finds her normal position as to both strength and flesh. The loss of femininity, the acquisition of mannishness, the growth of superfluous hair, and the deepening of the voice do not occur.

For the best ultimate results in gynæcology it must be learned to discriminate better between healthy and diseased ovarian tissue, and for the sake of the salutary preservation of the internal secretion it must become the rule never to remove any tissue capable of elaborating such a needed secretion if its retention can be accomplished without incurring greater risks than those incident to the loss of the secretion. Daniel H. Craig (New York Medical Journal and Philadelphia Medical Journal, March 5, 1904).

PERICARDITIS.

A few of the important signs of adherent chronic pericarditis are a systolic retraction in the region of the apex; the sign described by Broadbent, which is a distinct systolic retraction of the chest-wall in the region of the eleventh and twelfth ribs on the left side; Friedreich's sign, a collapse of the cervical veins during diastole, and, according to Kussmaul, a swelling of the cervical veins during inspiration. The pulsus paradoxus is significant of adherent pericarditis or rather of the dilatation which follows. The pulse becomes small

and feeble during inspiration, due to traction on the adhesions during the inspiratory expansion of the lungs. As these bands are drawn upon it causes a constriction of the vessels of the mediastinum, thus resulting in a small, feeble pulse-wave during inspiration. G. P. Paul (Medical News, March 26, 1904).

PLEURISY, IDIOPATHIC.

As a result of the study of 439 cases of pleurisy treated in the Boston City Hospital between 1880 and 1895, the writer concludes that about 10 per cent. of these cases are known to have developed tuberculosis. Over 55 per cent. of all the cases which were followed to their death died from some form of tuberculosis. Tuberculosis, when it occurred, developed within five years in over 50 per cent. and within ten years in over 70 per cent. The danger of evil consequences is much increased by a tuberculous family history or a personal history of some form of tuberculosis previous to the attack. G. G. Sears (Boston Medical and Surgical Journal, February 25, 1904).

PNEUMONIA, CALOMEL IN.

The use of calomel in pneumonia has been reported and recommended favorably for some time past by the author, and his present investigation is based on an experience with six cases. He does not consider the drug as specific, but is quite certain as to its beneficial effect in this disease. The remedy should be administered in generous doses and should be accompanied by such other drugs as provoke energetic peristalsis, so as to procure its complete elimination from the organism. Thus a double advantage is gained: The calomel is permitted to exert its good effect, and is at the same time not allowed to be absorbed by the system. The author prefers to administer it together with scammony, because they are both compatible, and also because of the latter's action on the intestines. The effect of calomel is principally that of an antipyretic, and at the same time it seems to cut short the further spread of the inflammatory process.

The author describes its action as that of an intestinal derivative, and as he is convinced that the intense headache of pneumonia is largely due to cerebral congestion provoked by the obstruction of the lesser circulation, as conditioned by the state of the lungs, calomel depletes the congested area by driving the blood to another portion of the body. With the headache there disappears rapidly the delirium, and the temperature falls and stays lower than it was before the administration of the drug. In calomel we possess one of the most energetic drugs in our armamentarium: It is an efficient diuretic, exerts an undoubted effect on the vasomotor system, is an active purgative, and a reliable disinfectant. C. Bertazzoli (Medical News; from Gazzetta degli Ospedali, November 15, 1903).

PNEUMONIA, LOBAR, TREATMENT OF.

The writer would emphasize the following conclusions as to the treatment of lobar pneumonia:—

The importance of not crowding an overtaxed heart with too much stimulation, and especially of basing the selection of the proper variety of cardiac stimulant on the existing balance between the conditions of vascular tone and the effort the heart is already making. The usefulness of the so-called "specifics" for pneumonia, and, as a rule, of expectorants. The importance of prevention of indigestion and particularly of tympanites. The great value

of hypodermoclysis in certain cases. The uselessness of topical applications, excepting for the purpose of relieving pleuritic pain. The necessity of prescribing proper intervals of rest in which the patient is free from incessant efforts at medication. W. G. Thompson (Journal of the American Medical Association, March 19, 1904).

PREGNANCY, EARLY SIGNS OF.

The writer gives a physical sign he has observed in a large number of cases before and including the third calendar month. This sign is noticed as early as the third week, and consists of an intermittent softening and hardening of the vaginal portion of the cervix uteri, with, in many cases, a change of color, from a pale violet to the normal pink hue, or the reverse. The alternate softening and hardening are readily detected by digital touch, while the changes in color may be seen through the speculum. These signs are probably the early manifestations of what is subsequently recognized as the intermittent contractions of the pregnant uterus and are probably due to a necessity for some change of modification in the uterine circulation incident to the nourishment and growth of the impregnated ovum through physiological intermittent congestion of the generative system. This sign the writer has never observed in any other normal or diseased condition. H. L. E. Johnson (Journal of the American Medical Association, February 20, 1904).

PUERPERAL ECLAMPSIA, TREATMENT OF.

Referring to the treatment mentioned by Dr. Hirst in the paper reviewed in the Monthly Cyclopædia of Practical Medicine of February, the author states that he had always advised caution in the use of morphine in Bright's disease, and with reason, because he had seen uræmia precipitated by it. At the same time he is not surprised to hear it claimed that the drug has been of signal service in the treatment of puerperal convulsions. Modern clinical studies have cleared up the situation, and experiment has confirmed its teachings. The truth is that morphine is probably dangerous mainly in chronic interstitial nephritis only. The majority of cases of puerperal eclampsia are due to parenchymatous or epithelial nephritis. In these morphine may be used with comparative safety and brilliant results. But since interstitial nephritis is responsible for a few cases, some risks must be run if morphine is indiscriminately used. As a precise diagnosis is not often made, the safest course is to get along without it or defer it until other measures fail.

It is well known that the normal kidney excretes many substances taken into the blood by the usual channels, some of which manifest themselves by an odor imparted to the urine—such as turpentine, which is recognized by the odor of violets; or asparagus, recognized by a peculiar, disagreeable odor remembered by all who have observed it. As far back as 1820, Halin noticed that turpentine failed to evidence itself when administered to a gouty patient, and seventeen years later Roget noticed that in two gouty patients who partook of a meal of asparagus the usual odor was not exhibited. Opium has been frequently known to produce toxic effects in nephritis, as witness a teaspoonful of paregoric in one of the writer's own cases referred to by Dr. Hirst. Mercurials are well known to be badly borne in nephritis, and salivation is easily induced by mercury administered in this disease. In

like manner iodine, salicylic acid, and quinine are not excreted by diseased kidneys.

In 1897 Achard and Castaigne published results of the administration of methylene blue by hypodermic injection, .5 centigrammes of the powder being dissolved in 20 parts of sterile water and deeply injected into the buttock under antiseptic precautions. The patient was directed to pass his urine at the end of one, two, four, eight, and twelve hours, and so on as long as urine continued to be colored. In normal cases the blue or bluish-green tinge usually appears in the urine within the first half-hour, and always within an hour. In certain forms of nephritis it was found to be several hours before the color appeared. In normal cases the maximum coloration, a deep indigo, is reached in about three hours, and the urine is not clear for two or three days. The drug was given subcutaneously in order to obviate errors from varying rates of absorption due to temporary or permanent gastric and intestinal derangements, as illustrated by a case of gastric cancer in which the blue did not appear in the urine until the fifth hour when given by the mouth. Bard and Bonnet, in France, and Richard C. Cabot, of Boston, repeated these experiments, modifying and extending them, and arrived at the same conclusion with Achard and Castaigne, viz.: that impairment of the power to eliminate methylene blue is the effect of renal insufficiency, whether functional or organic, temporary or permanent.

Bard and Bonnet add the important fact bearing on the topic in point, viz.: that, while in interstitial nephritis there is delayed secretion of the blue, in epithelial or parenchymatous nephritis the blue passes through the kidneys if anything more quickly than in health, pointing to an excess of permeability rather than a deficiency. To this Potoski and Guenard added the further important fact that the blue passes the kidneys as quickly in eclamptic cases as in labors without eclampsia. Menu and Mercier confirm this as to the first appearance of the blue, but noted that in albuminous cases the excretion was prolonged and irregular, the amount of blue showing violent oscillations, accompanied by parallel oscillations in the amount of albumin and solids.

Here is the explanation sought. The convulsions of *parenchymatous* nephritis may be treated by morphine with safety, because the renal epithelium is still capable of eliminating it. And, since most of the cases of puerperal eclampsia occur in connection with parenchymatous nephritis, it is evident why results are often so brilliant. Should it happen, however, as is sometimes the case, more particularly in cases where the nephritis has preceded pregnancy, that the disease is interstitial nephritis, the use of morphine is attended with large risk.

The second measure alluded to is the treatment of uræmic convulsions by hypodermoclysis or intravenous injection of normal salt solution associated with free sweating, and the sweat bath, with a view to dilution and elimination of the toxic agencies which produce the convulsions. The writer confirms all that Dr. Hirst said about the value of this treatment, but in order to secure the best results he holds that the sweat should precede the hypodermoclysis; nay more; he thinks this is necessary in order to avert a danger which he believes exists in connection with the use of hypodermoclysis; for it is quite possible to overload the venous side of the circulation and thus dangerously dilate the right heart. Indeed, he is not certain that he has not

seen a fatal termination precipitated by such a course. If, on the other hand, the blood be first depleted either by bloodletting—and he is certain that we would do well to use bloodletting more frequently in other than puerperal cases —or by sweating, we then make room for the salt solution to be subsequently introduced. The depletion removes a certain amount of toxic matter, while that which remains is further diluted by the salt solution. The sweating and hypodermoclysis may be used daily and even twice a day in urgent cases. James Tyson (Therapeutic Gazette, March 15, 1904).

PUERPERAL SEPSIS.

A century ago parturition was so often followed by fever of some kind that Nisbet defined pregnancy as "a certain inflammatory disposition of the body or nearly approaching to it." It was the rule at that time for the woman to run an elevated temperature during the puerperium. It was looked upon as unavoidable and due to the increase in the inflammatory tendency of the blood. Inasmuch as a woman may develop such a temperature, after she has had a child, from any cause that will produce fever in a nonpregnant woman, it becomes necessary, in the first place, to eliminate all possible causes other than those peculiar to that state. In other words, there is a difference between fever of the puerperium and fever in the puerperium. Strictly speaking, puerperal sepsis includes the following: 1. Puerperal fever or puerperal septicæmia of the worst and generally fatal type. 2. Puerperal sapræmia, which is usually accompanied by an offensive discharge and which is generally recovered from. 3. Puerperal pelvic cellulitis, also generally recovered from. 4. Puerperal pelvic peritonitis, nonfatal usually. 5. Puerperal pyæmia, often a late stage of any of the preceding, fatality depending on virulence of sepsis. 6. Phlegmasia dolens. This is now believed by many to be due to sepsis. 7. Milk fever. Inflammatory; often transient; probably septic; nonfatal. Peter Horocks (British Medical Journal, February 13, 1904).

PULMONARY TUBERCULOSIS, CONDITION OF THE BLOOD IN PATIENTS SUFFERING FROM.

The blood-picture in pulmonary tuberculosis is not constant, and the conditions described by Grawitz are by no means absolute. As can be seen by reference to the detailed results of the different examinations, there are cases in each of the three stages of the disease that are quite out of the limits of cellular and hæmoglobin content described by him. Omitting the exceptional case from consideration, however, the average case in the first stage of the disease presents a slightly reduced number of erythrocytes, a moderate reduction of the hæmoglobin, and about a normal number of leucocytes. The average case in the second stage presents a varying degree of leucocytosis, due to an increase in the number of polymorphonuclear, neutrophile cells. The erythrocytes are present in about normal numbers, and the hæmoglobin is often normal in percentage. The average cases in the third stage will show a reduction in the number of erythrocytes, a moderate leucocytosis composed of the polymorphonuclear, neutrophile cells, and a high hæmoglobin percentage. Hæmorrhage is usually followed by a marked reduction in hæmoglobin and a slight reduction in the number of erythrocytes. Leucocytosis is not an invariable feature of a posthæmorrhagic blood. Albumi-

nuria of itself appears to cause no constant change in the blood-picture. Tuberculous diarrhœa is apparently attended by a reduction of the number of the erythrocytes and of the percentage of hæmoglobin and by an increase of the leucocytes. The latter increase is due to the polymorphonuclear, neutrophile cells. Pleurisy is usually accompanied by a polymorphonuclear, neutrophile leucocytosis.

There is no distinctive blood-picture that will serve to differentiate between extensive cavity formation due to tuberculous degeneration and that due to other causes. Further, leucocytosis is not a constant feature of cavity formation. The leucocytosis occurring in the course of pulmonary tuberculosis is due to an increase of the polymorphonuclear elements, and not to an increase of the lymphocytes or of the transitional cells.

The absence of the eosinophile cells from the blood may be looked on as an unfavorable prognostic sign. The increase of these cells while the patient is under treatment may be taken as an indication that the progress of the disease has a tendency to become arrested. J. M. Swan (Journal of the American Medical Association, March 12, 1904).

PULMONARY TUBERCULOSIS, NEW METHODS OF TREATMENT OF.

It is generally admitted that in incipient and early cases of pulmonary tuberculosis treatment in sanatoria furnishes the best results—so good in fact that when taken in time pulmonary tuberculosis is a curable disease, as recently stated by Woodhead. But many patients are unable to leave their homes for lack of means or other causes. In some instances the sanatorium treatment may be carried out in the patient's home, but in the large majority of cases this is impossible or impracticable. It is in such cases that specific remedies and modes of treatment would be specially applicable. Of late a number of such specific methods have been advocated, which it may be of interest briefly to describe. Treatment by a drug or drugs would be the simplest, cheapest, and easiest applied, and several have been advanced. Harper (Lancet, October 18, 1902),believing that gout and tuberculosis are mutually inhibitory, professes to have attained excellent results by the administration of pure urea in increasing doses of from 20 to 80 grains three times a day. The object in view is to alter the soil by increasing the amount of nitrogen, the tissues of a consumptive being under-mineralized as compared with those of a gouty individual, and thus to bring about immunity. In the culture tube urea inhibits the growth of tubercle bacilli.

Drage, relying on the phagocytic and (according to Metchnikoff) the antitoxin-producing properties of the leucocytes, has treated tuberculosis by means of hypodermic injections of sodium cinnamate and other derivatives of cinnamic acid, with apparently good results. Cinnamic acid, in common with pilocarpine and some other substances, has the property of producing an artificial leucocytosis. Dewar (British Medical Journal, November 21, 1903) has applied the iodoform treatment of tuberculous joints to pulmonary tuberculosis. He injects from 5 to 7 minims of a not quite saturated solution of iodoform in ether into the arm. He has given as high as 40 grains of iodoform at a dose, and finds that it is possible fairly to saturate the patient with the drug without any harmful effect. The method is not one for routine use by the general practitioner, great care, patience, and con-

stant asepsis being necessary. Every vessel occluded diminishes the patient's chances of recovery. He has treated advanced cases in this way, and reports great benefit thereby. Chowry-Umthen (British Medical Journal, October 24, 1903) calls attention to the value of formaldehyde in pulmonary phthisis. It is best administered by means of continuous inhalation and vaporization, but may also be given by intravenous injection or forced through the skin by means of the electrical current (?).

High-frequency currents of low potential, together with intralaryngeal injections of antiseptics, such as iodine, thymol, etc., are alleged by Bowie (Lancet, October 31, 1903) to have a curative effect in pulmonary tuberculosis. The currents, which are given directly to the walls of the thorax, bring about a stronger power of resisting the toxins of the tubercle bacillus.

A serum treatment has been advanced by Marmorek (Lancet, December 12, 1903). By growing tubercle bacilli on a mixture of leucotoxic serum and an emulsion of liver-cells, he states, the bacilli produce their toxin outside of the body. This toxin, or "vaccine," when introduced into susceptible animals leads to the production of an antitoxin which not only shields against infection, but is also curative of the tuberculosis. And, finally, Maher (whose article was recently published in the New York Medical Journal and Philadelphia Medical Journal) thinks that he has obtained from the milk of a tuberculous cow an organism which is directly and immediately antagonistic to the tubercle bacillus, though nonpathogenic itself. While statements are freely made in text-books as to the antagonism of micro-organisms, yet instances of positive inimical action are but few and doubtful. In almost every instance the presence of another organism, even though nonpathogenic, favors infection with a given pathogenic bacterium. Nevertheless the immediate results obtained by Maher were very striking and demand further investigation.

In conclusion, when attempting to decide as to the value of any of these modes of treatment of pulmonary tuberculosis, it should be remembered that all the patients were presumably under as favorable circumstances as possible, and that sudden and unexpected improvement is no rare thing in this disease. J. B. Billings, Jr. (New York Medical Journal and Philadelphia Medical Journal, March 19, 1904).

RADIUM SALTS, PHYSICAL PROPERTIES AND MEDICAL USES OF.

The writer has found much similarity between the action of the radiations from radium and the x-rays, and thinks that if the results obtained by radium prove permanent, this new therapeutic agent will be largely used instead of the x-rays, but the two will supplement each other. Certain diseases promise to yield more readily to treatment by radium and others to the x-rays. A disease that has attacked different parts of the body of a given patient may be better treated in certain regions by radium and in others by the x-rays. It is quite possible that in some cases the two remedies used together on the same area and at the same sitting may accomplish better results than either alone. F. H. Williams (Medical News, February 6, 1904).

RADIUM, THE SURGICAL USES OF.

Much has been written and said during the past year about radium and its uses, and, as with every other new thing

used therapeutically, there have been many sensational reports about remarkable cures. In a recent paper read before the Medical Society of the District of Columbia, Dr. Truman Abbé ("Washington Medical Annals," volume ii, page 363, 1904) gives an interesting review of the important work which has been done by investigators all over the world with radium, and also gives the results of some personal experience in its use. Metallic radium has not been isolated, and the product on the market and in general use is known as the chloride of barium and radium. The strength or activity of a specimen is estimated by the rapidity with which the salt discharges a gold-leaf electroscope. The standard unit of time adopted is that required for the discharge of such an electroscope by metallic uranium. If the specimen of radium discharges the instrument in one-thousandth the time required by the uranium, the strength is taken as one thousand. Specimens of high strength are generally used, anywhere from two to three hundred thousand. The use of radium to give pictures of dense substances, as the x-rays are used, is not likely ever to prove very satisfactory, for it gives no sharp definition; the photographs are so blurred in outline as to have little value. Studies by a number of observers seem to show that radium-rays diminish or inhibit the growth of certain forms of bacteria. Among others affected in this way are *Bacillus anthracis, Bacillus typhosus,* and *Bacillus coli communis.* Unfortunately the radium-rays, like the x-rays, are not without harmful effects, so that the rays which inhibit the growth of bacteria damage the tissues to so great an extent that they probably will prove of little value. Radium burns resemble in nearly every respect those from the x-rays, appearing several weeks after exposure as a slight reddening, which, in case of longer exposure, may go on to form a blister or even a large ulcer. The scar is likewise smooth and hairless, even though the deeper parts of the skin are not involved, and healing is as slow as in x-ray burns.

The therapeutic uses of radium also follow the same lines as those of the Finsen and Roentgen rays. A number of cases of lupus treated successfully with radium-rays have been reported. In some of these one part of the disease was treated with Finsen's light and the other with radium, with results in favor of the radium. Psoriasis and telangiectasis have also been treated successfully. One case of general melanosarcoma of the skin is reported by Exner, of Vienna, in which the smaller nodules disappeared and the larger ones were growing smaller at the time of report. A large number of cases of inoperable and recurrent carcinoma and of epithelioma have been treated with radium, some of them apparently with considerable success. Exner treated a group of twenty cases in Gussenbauer's clinic with evident improvement in all. Cases of carcinoma of the cervix, and a case of inoperable carcinoma of the cervix and vagina, have been reported as successfully treated with radium. But too much confidence must not be placed in the value of radium therapy, and further study is necessary.

Newspaper reports — and even some articles in medical journals—about wonderful cures by radium, the x-ray, or by other means undoubtedly do more harm than good. While too much should not be expected from any of those means of treating inoperable carcinoma, a sufficient number of cures have resulted to make their use entirely justifiable. In-

deed, we believe that it is very unfortunate that so many members of the medical profession are inclined to neglect the treatment of inoperable malignant diseases. Such patients, if given no encouragement by the regular physician, are almost certain to fall into the hands of quacks, who not only extort from them all the money they can get, but almost invariably leave them in much worse condition than they were before. We can at least relieve pain, and give a little encouragement for permanent cure from the use of a number of the means which have been introduced from time to time. When operation is possible, it should certainly be given the preference in every case, and patients should be warned of the danger of temporizing with means of treatment, which are, in the majority of cases, only palliative.

The radium-rays, no doubt should be classed with the x-ray, Coley's serum, Adamkiewicz's serum, and the various caustics. These have given cures in a few cases of inoperable malignant diseases, but they are too uncertain in their action to be used except when operation is out of the question. No doubt in the future we may be able to determine the cases to which these various therapeutic measures are best adapted, and the number of cures by such means may be considerably increased. It is along these lines we believe that radium will prove most useful. Editorial (Journal of the American Medical Association, March 26, 1904).

RETROPERITONEAL INFECTION A RESULT OF APPENDICITIS.

Every "delayed case" should be considered with anxiety, lest there should be retroperitoneal infection. A guarded prognosis should be given in every case of appendicitis ushered in by or complicated by chills or any symptoms of sepsis. If operating in such cases, retroperitoneal infection should be considered as already started and treated accordingly. The discovery and proper treatment of such infection is quite as important as the usual intraperitoneal technique.

In view of the possibilities of retroperitoneal infection, a great responsibility is assumed by advising nonintervention in appendicitis, and, while delay is often advised when the lesions are believed to be strictly intraperitoneal, yet it would appear that such a course is very unsafe, and it should be condemned when there is reason to fear the complications described. I. S. Stone (American Medicine, February 27, 1904).

SPONDYLOZE RHIZOMÉLIQUE, CONTRIBUTION TO THE STUDY OF.

While Bechterew's, as well as Strümpell-Marie's, ideas cannot be accepted in the sense of the existence of two sharply defined clinical entities, the other view of considering all cases of spondylosis as an expression of rheumatism for the simple reason that the patient some time during life presented a history of rheumatism cannot be equally accepted. The onset, course, and termination are in some cases not those of rheumatism.

A great many cases recorded, if not all, present distinct symptoms of cord involvement showing that the etiological factor is of a more complicated order than one may suppose. Between the types described by Bechterew, Strümpell, and Marie there are a great many intermediary forms. Spondylosis is only a symptom of a more complicated disease, the etiological factor of which is not at all elucidated. Alfred Gordon (Medical News, February 13, 1904).

SUPRARENIN IN SURGERY.

An interesting article by B. Müller (Münchener medicinische Wochenschrift, February 2, 1904) deals with the use of suprarenal extract in major surgery. The preparation known as suprarenin was employed in almost all cases, and many experiments convinced the author of the intense action of this substance upon the smaller vessels. If the mucous membrane of the mouth is moistened with a 1 to 1000 solution, a pale-yellow spot will result; if injected into the skin of a dog in a dilution of 1 to 10,000, an incision could be made without the loss of a single drop of blood, and a microscopical examination gave evidence of extreme vascular spasms. Laparotomies can be easily performed, but vessels more than one millimeter wide must be ligated despite the fact that their media often contracts and shuts off the lumen after division. The pale condition of the tissues enables one to detect and avoid nerves without much trouble. In very bloody operations, such strumectomies and amputations of the breast, suprarenin is invaluable, and in the much-feared resections of the liver it must be regarded as indispensable. In order to avoid injury to the larger vessels and stopping-up of the needle, this is constructed with a blunt, closed end and two lateral openings. Care must be taken to incise within the anæmic district and so that more of this lies centripetal to the knife than centrifugal. Spurting from larger vessels is avoided by manual compression of the liver, central to the cut. After-hemorrhages were never observed, since the vessels are effectually shut off by thrombi before relaxation occurs. In one case the stump was examined two days after operation. The process of healing was found absolutely normal both macroscopically and microscopically, and necrotic areas could not be found. Extirpation is more difficult than resection, since it is often impossible to tell how deeply one must go into the liver. In small cancer nodules or gummata the excision is wedge-shaped and the needle is introduced in the direction of the two incisions. More trouble will be experienced where the gall-bladder is to be removed, especially where the tumor has already extended upon the liver. Large vessels are encountered here in abundance, but suprarenin, by suppressing parenchymatous oozing, allows these to be seized with great ease—a point of great importance in cachectic individuals. In general it may be said that a strength of 1-1000 to 1-2000 has an almost instantaneous effect and is best for liver and kidneys; 1 part in 5000 to 10,000 is sufficient for skin, fat, and muscle, and acts in two minutes. Up to 10 cubic centimeters of a 1 to 1000 solution may be injected without fear of intoxication. Boiling is the most efficient means of sterilization. Weak solutions will decompose in time, but a pink solution is just as active as a colorless one. A 1-10,000 or 1 to 20,000 solution stimulates the heart, and 1 cubic centimeter may even be injected into the myocardium. (Medical News, March 26, 1904.)

TYPHOID FEVER, DIAGNOSIS OF.

The conclusions to be drawn from the results of a test are as follows: A positive reaction means that the patient has enteric fever at the moment, or else has suffered from that disease previously. It is well nowadays to inquire also as to whether the patient was ever vaccinated against typhoid. A negative reaction in the first fortnight of the fever means little or nothing. If, however, it is still

negative in the third week, there is a strong presumption against a diagnosis of typhoid. Should a negative reaction be still obtained after the third week is over, for practical purposes the idea of typhoid may be dismissed. It will be seen that for the consolation of those who regret what might almost be called the emasculation of clinical diagnosis by bacteriology, the test, finally accurate as the writer believes it to be, leaves plenty of time for the exercise of clinical ability. C. B. Ker (Practitioner, March, 1904).

TYPHOID FEVER, LATE EFFECTS OF, ON THE HEART AND VESSELS.

A study of the condition of the heart and vessels in 183 individuals who have passed through typhoid fever at the Johns Hopkins Hospital within the last thirteen years has revealed the following facts:—

The average systolic blood-pressure in these old typhoids was appreciably higher than in control observations upon healthy individuals. The higher average of the blood-pressure was constant in every decade. In many instances among the old typhoids the blood-pressure exceeded appreciably the limits of what is usually regarded as normal. The radial arteries in the old typhoids were palpable in a proportion nearly three times as great as that found in control observations upon supposedly healthy individuals who had never had the disease. The average size of the heart was greater among the old typhoids than in the same cases at the time of admission to the hospital. The difference held good also when the cases were classed according to age by decades. Cardiac murmurs were heard with considerably greater frequency among the old typhoids and in the same cases during the attacks. In 8 cases where, on discharge from the hospital, the heart was considered normal, subsequent examination revealed hypertrophy, with mitral insufficiency. One case showed a possible mitral stenosis; 1 an aortic insufficiency; 1 a striking general arteriosclerosis, with hypertension. In 1 case an aortic diastolic murmur was present four months after discharge, but had disappeared five months later.

Those patients whose pulse during the disease was remarkably rapid or irregular, showed, in general, on later examination, a blood-pressure above the common average for the old typhoids. In other respects, however, their condition differed but little from the general run of cases. Those cases in which a systolic murmur at the apex of the heart was observed during the attack showed later an increase in the blood-pressure and in the size of the heart, as compared both with the mean of the observations made upon the same cases on admission to the hospital and with the general average for the old typhoids. Nearly one-fourth of these cases in which, during the attack, systolic apical murmurs were detected, showed, on later examination, evidences of organic heart disease. Indeed, the majority of all the cases of organic cardiac lesions among the 183 old typhoids came from this small group of 31 cases. W. S. Thayer (American Journal of the Medical Sciences, March, 1904).

X-RAYS AND THE RAYS FROM THE SALTS OF RADIUM, A COMPARISON BETWEEN THE MEDICAL USES OF THE.

The rays from radium salts, unlike the x-rays, are not serviceable in diagnosis either by means of radiographs or of fluoroscopic examinations. The beta rays are useful as a therapeutic agent in

certain skin diseases and new growths, if the diseased tissues are superficial or are not more than about one and one-fourth centimeters (one-half inch) below the surface of the skin or accessible mucous membranes. The beta rays from radium salts will heal some cases of new growths that are not healed by the x-rays, and they act more promptly, but not over so large a surface at one time as the x-rays.

Radium salts of an activity of 8000, or considerably more, are not sufficiently strong to be efficient. Pure radium salts, which have a radio-activity of about 1,500,000, are not too strong for the work to be done. The radiation from radium salts, unlike that from the x-ray tube, is uniform. Great care should be exercised to avoid burns. F. H. Williams (Boston Medical and Surgical Journal, February 25. 1904).

Books and Monographs Received.

The editor begs to acknowledge, with thanks, the receipt of the following books and monographs:—

Manhattan Eye and Ear Hospital Reports, Number III, March, 1904.——On Disease of the Heart Due to Overindulgence in Alcoholic Drinks. By W. Hale White.——Special Influences of the High Altitudes on the Nose and Throat. By S. E. Solly, Colorado Springs, Colo. 1903.——Bronchiectasis in the Tuberculous. An Unusual Case Reported. By S. E. Solly, Colorado Springs, Colo. 1903.——Suggestions for a Uniform Nomenclature of the Movements and Motor Anomalies of the Eye. By Alexander Duane, New York City. 1903.——The Systematic Use of Cylinders in Making the Shadow Test. By Alexander Duane, New York City. 1903.——Aplasia of the Papilla and Retinal Vessels, with a Peculiar Anomaly at the Macula in Eyes otherwise Normal. By Alexander Duane, New York City. 1903.——The Value of the Screen Test as a Precise Means of Measuring Squint. By Alexander Duane, New York City. 1903.——I. Prolonged Intubation. II. Esophagotomy for a Dental Plate. III. Laryngectomy for Carcinoma. By G. F. Cott, Buffalo, New York. 1903.——The Import of the Salivary and Nasal Secretions in Hay Fever. By D. Braden Kyle, Philadelphia. 1903.——The Relation of the Chemistry of the Saliva (Sialo-semeiology) and Nasal Secretions to Diseases of the Mucous Membrane of the Mouth and Upper Respiratory Tract. By D. Braden Kyle, Philadelphia. 1904.——A Study of Gout. By J. D. Morgan, Washington, D. C. 1904.——Friedreich's Disease, with the Report of a Fatal Case By F. Savary Pearce and J. M. Swan, Philadelphia. 1900.——A Note on the Treatment of Diphtheria. By J. M. Swan, Philadelphia. 1901.——A Case of Diverticulum of the Esophagus, with Autopsy. By Joseph McFarland and J. M. Swan, Philadelphia. 1903.——A Review of the Recent Literature on the Intercommunicability of Human and Bovine Tuberculosis. By J. M. Swan, Philadelphia. 1903.——Mercurial Nephritis. By J. M. Swan, Philadelphia. 1904.——Facial Paralysis. By N. L. Wilson, Elizabeth, N. J. 1904.——Abdominal *versus* Vaginal Hysterectomy. By J. B. Deaver, Philadelphia. 1904.——Rheumatic Torticollis. By J. M. Swan, Philadelphia. 1898.——The Anomalies Occurring in the Anatomical Room of the University of Pennsylvania During the Session of 1897–1898. By J. M Swan, Philadelphia. 1898.——Report of a Case of Chronic Valvular Endocarditis and Acute Nephritis following Chorea. By J. M. Swan, Philadelphia. 1900.——Hepatic Drainage in Infection of the Biliary Tracts. By J. B. Deaver, Philadelphia. 1904.——A Study of Normal and Pathological Conditions of the Bursæ of the Neck, with Special Reference to the Subhyoid Bursa. By W. S. Anderson, Detroit, Mich. 1904.——Weeds in Medicine. By Alice Henkel, United States Department of Agriculture, Washington, D. C. 1904.——Statistics of the Dairy. By H. E. Alvord, United States Department of Agriculture, Washington, D. C. 1903.——The Hog Industry, Part I, II, III. By G. M. Rommel, United States Department of Agriculture, Washington, D. C. 1904.——Methods Used for Controlling and Reclaiming Sand Dunes. By A. S. Hitchcock, U. S. Department of Agriculture, Washington, D. C. 1904.——Experiment Station Work, XXIV. United States Department of Agriculture, Washington, D. C. 1904.——Barnyard Manure. By W. H. Beal, United States Department of Agriculture, Washington, D. C. 1904.——Foreign Import Tariffs on Fruits and Nuts. 1903. By F. H. Hitchcock, United States Department of Agriculture, Washington, D. C. 1903.——The Cotton Boll Worm, with the Results of Experiments in 1903. By A. L. Quaintance, United States Department of Agriculture, Washington, D. C. 1904.——Information Concerning the Mexican Cotton Boll Weevil. By W. D. Hunter, United States Department of Agriculture, Washington, D. C. 1904.——Reclamation of Alkali Land near Salt Lake City, Utah. United States Department of Agriculture, Washington, D. C. 1904.

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THE PHYSIOLOGICAL ACTION AND MORBID EFFECTS OF ANTIPYRIN AND OTHER COAL-TAR PRODUCTS IN FEVER.

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AS PREVIOUSLY stated in this journal and elsewhere,[1] the destruction of microorganisms and their toxins—in the light of my own views—is insured by an *adequate* febrile process due to the interaction of three agents: (1) *fibrinogen,* a nucleo-

proteid body rich in phosphorus secreted by neutrophile leucocytes; (2) *adrenoxin,* composed of adrenal secretion and oxygen absorbed by this secretion in the lungs; and (3) *trypsin,* a proteolytic ferment which is active both in the digestive vacuoles of phagocytic leucocytes and in the blood-stream. The last-named body I regard as the true bactericidal and antitoxic agent, and the two others as adjuncts, their interaction resulting in the liberation of sufficient heat-energy to enhance the trypsin's efficiency as a germ- and toxin- cleaving ferment. The pathogenic agents are thus converted into harmless products, as a result of the trypsin's increased activity both in the phagocytic leucocytes and in the blood, when the intrinsic temperature in the latter is raised—*i.e.,* when *fever* appears. In other words, the febrile process is the expression, all else being equal, of a correspondingly great supply of trypsin, fibrinogen, and adrenoxin, and is due to proportionally active adrenals. Again, I have submitted the many experimental and clinical facts which have led me to conclude, not only that some drugs could enhance the functional activity of the adrenals by gently stimulating their general center, the pituitary body, but also that some agents could do so with sufficient violence to depress or even arrest their functional activity.

What is the position of antipyrin and other coal-tar products in this connection? The deductions submitted below are, it seems to me, sustained by considerable experimental evidence, a part of which is appended.

1. *Antipyrin promptly causes marked vasoconstriction.*

Moderate doses of antipyrin have been found by Demme,[2] Arduin,[3, 23] Pavlinow,[4] Casimir,[5, 23] Cerna and Carter,[6] and other experimenters to raise the blood-pressure. As previously emphasized,[1] when this phenomenon occurs the deeper vascular trunks contract and force the blood to the periphery. Lépine[7] noted that antipyrin caused constriction of these deeper vessels, and notably of those of the splanchnic area. Casimir[5, 23] also found that the arterial pressure caused by this drug was accompanied by contraction of the internal vessels, including those of the kidney.

Under these circumstances the resulting engorgement of the peripheral capillaries should normally give rise to symptoms of excessive cutaneous hyperæmia: Marked exaltation of reflex sensibility was observed after the injection of moderate doses by Blumenau,[8] Arduin, Demme, Simon and Hoch,[9] and other investigators. Tactile sensibility was raised to such a degree in Blumenau's animals (cat and frog) that the least touch or noise caused general convulsions. Halliday[10] also found that such slight stimulation, as blowing the breath gently on the surface of the animal's body, greatly intensified its reflex movements and caused convulsions. This is also confirmed by the following experiment of Sudzilovski's.[11] Frogs were placed in water of various temperatures (from 3° to 30° C.) and then received injections of antipyrin. It was found that at a temperature of from

28° to 30° C., 0.1 gramme of antipyrin produced convulsions in from four to five minutes. At a temperature of 17° C. slight convulsions appeared at the expiration of from fifty-three to fifty-five minutes, while at a temperature of from 3° to 5° C. no effect whatever was produced.

All these phenomena are evidently of nervous origin, for, while Bouchard[12] observed that moderate doses of antipyrin caused muscular rigidity, Blumenau found that division of the sciatic and crural nerves caused the muscles supplied by these nerves to preserve their normal state, while all others were rigid.

2. *The vasoconstriction, both of the arteries and veins, may be sufficiently marked to obstruct the circulation in, and cause engorgement of, the capillaries.*

Since arteries and veins are supplied with a muscular coat and vasomotor nerves while capillaries are not, the latter are not constricted along with the former. The blood primarily forced into them by the great central trunks cannot freely pass out through the contracted veins, and the capillaries are mechanically dilated, sometimes with considerable violence. "Notwithstanding the elevation of the blood-pressure," writes Manquat,[13] "vasodilation is observed even after small doses." Peripheral vasodilation after small doses was noted by Coppola,[14] Querrolo,[15, 23] Maragliano,[16] and others. This vasodilation can be seen in the ear of rabbits according to Casimir,[5, 23] while Maragliano and Querrolo found plethysmographically that the immersed arm was increased in size by antipyrin, showing that its peripheral vessels were dilated. Pisemski[17, 24] noted at the autopsy of dogs poisoned by daily doses of 15 or 45 grains (1 to 3 grammes) "intense engorgement of the brain and meninges with a serous exudate into the cerebral ventricles."

Familiar symptoms clearly point to excessive vasoconstriction with engorgement of the capillaries as their cause. Thus, H. Blakeney[18] observed a case in which there appeared, among other signs, when 10 grains (0.64 gramme) had been "scarcely swallowed," a burning sensation in the mouth and throat and "extraordinarily rapid swelling" of the lips and cheeks, which quickly spread over the entire face, almost closing the eyes. Soon afterward urticaria appeared and spread all over the body. The various antipyrin eruptions also point to excessive vasomotor constriction of the arteries and veins, the accumulation of products of catabolism acting as the main cause. A study of this question led Wechselmann[19] to conclude that the production of antipyrin eruptions was in all cases due to the absorption of the drug into the circulation, whether given orally, hypodermically, endermically, or introduced through the mucosæ of the body. He ascribed the lesions to the central nervous system, and especially to the vasomotor apparatus.

3. *Very large doses, small doses too frequently repeated, or small doses in subjects whose adrenal system is abnormally sensitive may cause sufficient vasoconstriction of the arteries and veins to greatly reduce their caliber. The arterial*

blood in the capillaries is then exposed to the reducing action of the surrounding tissues sufficiently long to become transformed into venous blood, thus causing cyanosis.

The morbid phenomena observed include in some cases, as stated, swelling and œdema, which sometimes extend, I may add, to the mucous membrane of the respiratory passages. They obviously point to interference with the circulation. That cyanosis, commonly observed in connection with local *hypo*thermia, is also the result of stagnation of the blood where its oxygen is promptly utilized, though not renewed,—as in a too tightly bandaged extremity, for instance,—seems as evident. In cases of antipyrin poisoning attended with this symptom the evidences of such a mechanical stagnation are very clear. In an instance reported by McCauley Hayes,[20] for example, the patient's face, within a quarter of an hour after taking 10 grains (0.62 gramme) "was cyanosed, his nose swollen and blue, and his eyes almost closed from swelling of the eyelids," the skin being "*cold* and clammy." In a case observed by E. Webster,[21] the "lips and general aspect being decidedly cyanotic," though the mixture administered had only contained 5 grains. The face was swollen, especially about the eyes—so much so as to prevent any possibility of opening them." The temperature in the axilla was only 97° F. (36.1° C.).

Should the cyanosis be ascribed to a transformation of oxyhæmoglobin into methæmoglobin, as believed by Hénocque?[22] That such may be the case in some instances is possible, for, as stated elsewhere,[1] the hæmoglobin molecule becomes dissociated when nôt periodically exposed to the oxygen-laden adrenal secretion in the lungs. Prolonged peripheral imprisonment of blood in a given area might thus cause the hæmoglobin pigments to fall apart in this area. Halliday,[10] however, examined spectroscopically blood taken from the cyanosed lips of frogs and rabbits, both before and after death from antipyrin poisoning, and found that "the spectrum of methæmoglobin was certainly not present." Cyanosis here, therefore, is evidently not due to methæmoglobin, but to the familiar cause of this phenomenon—*e.g., the accumulation of* CO_2*, due, in turn, to excessive vasoconstriction.*

4. *When the adrenal system is unable, owing to congenital, acquired, or temporary susceptibility, or an organic lesion of either of its component parts, to withstand the violent stimulation to which antipyrin subjects it, the functions of the adrenals may suddenly cease under the influence of even small doses of the drug, and the symptoms of adrenal failure appear.*

So marked is the difference between the two general classes of phenomena produced by the drug that they have been divided into two classes by various writers. Demme, for instance, refers to two periods: an initial period, that of "excitation," and a secondary period, that of "paralysis." Wood[23] states that "it is probable that

the drug acts as a primary stimulant and a secondary depressant of the spinal cord"—an estimate sustained by the evidence submitted. The special senses were also found to be "first stimulated, then paralyzed," by Simon and Hoch. As to the characteristic effects of toxic doses, they are as clearly defined. "Large doses depress the nervous system and lower the blood-pressure, and symptoms, varying from an unpleasant diaphoresis to severe collapse, have been met with after administration." Again, Blumenau found, with many other experimenters, that very large doses caused in the frog a total loss of reflex activity, general muscular relaxation, paralysis, and death, and, in mammals, a rapid fall of temperature, paralysis, dilatation of the pupils, coma, and death—the predominant phenomena that follow removal of the adrenals.

In a series of 116 instances of poisoning collected from literature by Hare,[24] some years ago, acute symptoms are stated to have begun "at once" or "immediately" after the ingestion of the drug 32 times. In 15 of these the symptoms were those of "serious collapse," the phenomena recorded including subnormal temperature, a feeble pulse, etc. The rest, however, all show some evidence of the morbid process primarily provoked by the drug: *intense* vasoconstriction, the typical eruptions, sneezing, heat of the surface, cyanosis, dyspnœa, etc. When now we consider that, out of the total of 116 cases, 60 presented some form of rash, we have an insight into the immediate cause of the collapse—*i.e.,* sufficient vasoconstriction of the adrenal vessels to temporarily impair their functions in the cases that recovered, or to arrest their functions by causing interstitial hæmorrhage in the adrenals. Given now a case in which these organs, already overworked and, therefore, hyperæmic during the presence of some acute febrile process or other toxæmia, are subjected to the *additional* capillary congestion which the intense vasoconstriction caused by antipyrin procures, what may we expect? The answer is patent in Hare's statistics: Out of the 32 cases in which the symptoms of intoxication began "at once," 20 were suffering from some toxæmia, 11 being cases of typhoid fever. That this proportion is lower than the actual one is probable, for in several instances the original reporters had not stated the disease from which the patient was suffering when the toxic phenomena came on. The morbid effects cannot be ascribed to excessive doses, for in 15 of the 20 cases referred to the doses did not exceed 15 grains (1 gramme) and 7 of these patients only received doses varying from 3 to 10 grains. It seems plain, therefore, that:—

5. *Antipyrin, in the stage of depression, reduces the temperature by causing adrenal insufficiency. The resulting dilatation of the great central vascular trunks causes depletion of the peripheral capillaries, and the internal temperature is thus raised, while that of the surface is lowered.*

Experimental evidence clearly points to lowered metabolism as the predominat-

ing physiological factor in the fever-reducing mechanism. H. Jean and Frédéricq[13] found that antipyrin reduced the intake of oxygen. Robin[25] has shown that antipyrin reduced oxidation and that large doses of the drug reduced the elimination of urea from 21 to 33 per cent., phosphoric acid, and the chlorides, and, moreover, that organic disintegration was diminished. Wood[23] states that the original studies of Umbach,[26] "who found that large doses of antipyrin very markedly decrease the elimination of urea," have been "abundantly confirmed," and refers to the investigations of Wiczowski, Walter, Müller, Robin, Jacubovitsch, and Tausk. Along with Wood, Reichert, and Hare,[27] he had experimentally ascertained—a fact subsequently confirmed by Destrée,[28] Cerna and Carter,[6] and others—that in febrile animals antipyrin markedly decreased the heat production. Diminished thermogenesis can only mean diminished metabolism and, therefore, in the light of the doctrines I have submitted, adrenal insufficiency. If the local process through which the adrenals are rendered insufficient is now recalled, it seems clear that:—

6. *Antipyrin should not be used during toxæmias, especially when fever is present. It only acts as an antipyretic by causing excessive hyperæmia of the adrenals—a condition exposing the patient to general collapse, even when small doses are administered.*

Briefly, antipyrin—and this applies to all other coal-tar products used as antipyretics, though some are less violent in their action—is a dangerous remedy as an antipyretic. Its record is bad. "The temperature of a typhoid case is reduced, it is true," says Manquat,[13] "but no beneficial effect follows the adynamia; the stupor, the anorexia, the diarrhœa, persist, the urine remains scarce. . . . At times it would seem as if the condition of the patient had been aggravated; especially is this the case during the first two weeks of the disease, just as if antipyrin had caused the *retention in the economy,* by its inhibiting influence upon the urinary secretion, *of the toxins* which give rise to the symptoms of the earlier and active periods." No estimate of the actual result of the use of antipyrin as an antipyretic could be more precise. In the light of my own views, Nature provides a mechanism to lock the toxins where all her weapons of defense can best be brought to bear to disrupt and burn them—*i.e., in the peripheral capillaries, near the surface, where the surplus heat energy produced can most easily be liberated.* Antipyrin, put to the use its name implies, banishes the fever, it is true, but simultaneously initiates the most dangerous complication that could occur: adrenal insufficiency. The blood is suddenly deprived of its most active protective elements; bacteria and toxins gain free access to all parts, and a fatal termination follows—unless the adrenal system can once more gain the upper hand.

Albert Robin long ago[29] laid stress upon the fact that "oxidations are lowered in infectious diseases attended with the typhoid state, while they are increased

when cases spontaneously tend toward recovery. Hence," says this clinician, "to inhibit oxidations in order to lower the temperature is useless and dangerous, since it acts in the same manner as one of the gravest features of the disease."[39] These views, based upon a large number of investigations, are fully sustained by my own researches and clinical observations. The adrenal system being the primary source of the oxidation processes, to thwart its function is to thwart the system's means of defense, and, therefore, to court death.

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ABDOMINAL DISEASE, THE COSTAL ARCH IN.

The symptom of costal resistance may always be elicited in the acute and subacute inflammatory processes of the contiguous underlying organs. In chronic inflammation of these same organs it is present irregularly, either generally, when the organ is increased in size, or during a transitory exacerbation of the chronic inflammatory process. In neoplasms or cysts increased costal resistance may be obtained only when the tumor has reached a sufficient size to mechanically interfere with the movement of the arch. The degree of resistance is in direct ratio to the intensity of the inflammatory process. The in-

crease of costal resistance is most marked in that segment of the costal arch which is closely situated to the original point of infection, or, in the case of neoplasm, to that part of the arch which lies over the most prominent part of the tumor. Its value as a diagnostic symptom is greatest in pathological conditions invading the upper half of the abdominal cavity, especially of the liver, the stomach, the pancreas, the gall-bladder, the spleen, the duodenum, the kidneys, and in extensive aneurism of the abdominal aorta. The writer had had but little opportunity to observe this symptom in supradiaphragmatic processes. In case of empyema the abscess-cavity is generally encapsulated and does not usually occupy the lowest part of the thoracic cavity. Only when so situated is there resistance of the costal arch proper. In higher positions any difference in the rigidity of the overlying rib is very difficult to detect and unsatisfactory. The presence of asymmetry in the elastic recoil is very much less frequently observed than asymmetrical increase in the costal resistance, the former being present only in cases of cysts, neoplasms, and inflammatory exudates in which the acute symptoms have subsided, while it is invariably absent in all the acute and subacute inflammations. With the subsidence of the inflammatory process, whether by radical or palliative procedure, the costal resistance again returns to its normal condition. The presence of this symptom is very valuable, not only in facilitating accurate diagnosis, but also in serving as a useful guide to that incision through which the inflammatory focus may be most rapidly exposed and satisfactorily treated. Proper and skillful technique in determining the presence or absence of this symptom may be easily acquired, and, therefore, the application of the symptom may be utilized by the general practitioner, and not confined to those engaged in the pursuit of any particular specialty. Ellsworth Eliot, Jr. (Medical News, April 30, 1904).

ABDOMINAL PAIN.

Muscular spasm, when present, is of great import. Its absence does not exclude the possibility of a gross lesion. Spasm is wanting when there is little or no muscle overlying the seat of the lesion, and disappears on the advent of toxæmia.

Cutaneous hyperalgesia may often exist. The point to bear in mind is that if it has once made its appearance and subsequently disappears, without general improvement in the patient's condition, the outlook is ominous. Gangrene or perforation must, in such cases, be suspected. The intoxications are capable of producing severe abdominal pain, and special attention is called to the abdominal pain due to uræmia. Hysteria and the neuroses have too often been invoked to explain away a pain; such an explanation is, as a rule, a confession of ignorance.

Finally this general caution is given: "The occurrence of relief to suffering must not lull us into false safety. Such disappearance may be of diagnostic importance. Apart from termination of the disease in its natural course, such subsidence may be due to *(a)* the onset of gangrene, *(b)* to an oncoming toxæmia. *(c)* to both, *(d)* to perforation of a hollow viscus (as the stomach or gall-bladder, or appendix) or the rupture of an abscess. If pain disappears suddenly there must be gradual, but prompt, amelioration of all general and local symptoms if the patient is safe." J. H. Musser (American Medicine, March 26, 1904).

ACCESSORY SINUSES.

The accessory sinuses of the nose in man are phylogenetically very ancient structures, and figure physiologically as feeble, subsidiary, respiratory organs. The maxillary sinus in the higher vertebrates has its prototype in the amphibian accessory nasal chamber, in which it was an olfactory organ; hence phylogenetically the antrum in man is an obsolete organ of smell. For as yet unaccountable reasons, the sinuses develop *pari passu* with the generative organs, and there is evidence of an intimate physiological relation between these remote anatomical regions. The variations, even in healthy sinuses, are so great that it were hazardous to attempt an analytical classification looking to definite size, shape, or openings. For embryological reasons each sinus is a law unto itself.

The sinuses are supplied by the trifacial nerve; hence reflex phenomena between them and the peripheral cervical nerves is possible. As a diagnostic expedient, the possibility, in the sinuses of man, of reversion to structural fixed types in the lower vertebrates should be borne in mind by the specialist. Operations on the sphenoidal sinus are anatomically unjustifiable ones. Sound teeth should never be sacrificed, and the nasal route for gaining entrance to the antrum is never dangerous. W. T. Eckley (Chicago Medical Recorder, April 15, 1904).

ALCOHOLISM AND DEGENERATION.

Alcohol plays an enormous rôle in bringing about degeneration of the race. This is most clearly seen in the growing inability of mothers to nurse their offspring; thus, when mother and daughter of one family were not obliged to resort to artificial food, the father was a drunkard in only 2.6 per cent., while where both were unable to nurse, a history of excessive drinking was obtained in 42.2 per cent. All cases of functional derangement owing to imperfect condition of the nipples were ruled out. The condition is hereditary, for, if the mother has lost the power, it will never be regained in that particular degeneration. Other stigmata go hand in hand with deficient nursing capacity, and a pronounced disposition toward tuberculosis, nervous diseases, and psychoses is very evident. The offspring of alcoholics also suffers more frequently from carious teeth. G. von Bunge (Virchow's Archiv, vol. clxxv, No. 2, 1904).

ATROPINE IN OPHTHALMIC PRACTICE, THE USE OF.

Indications for the Use of Atropine.—In correcting errors of refraction in patients under 40 years, unless there is a contra-indication to its use,—such as pregnancy, lactation, or a glaucomatous condition,—atropine is a useful agent. Various other drugs are employed in testing and measuring refractive errors, but none so effective and productive of good results as atropine. Homatropine is preferred by some because it does not incapacitate the patient for such a long time; but, while it is reliable in ordinary cases, its use in complicated cases is positively of no avail. In all cases of high degree of hypermetropia; cases accompanied by severe headache or other symptoms resulting from errors of refraction; in cases of astigmatism, simple or compound, hypermetropic or myopic, atropine is the most reliable cycloplegic.

In spasms of accommodation with a resulting apparent myopia atropine is the drug to employ to clear up the condition. In the treatment of convergent

strabismus, due to an excessive degree of hypermetropia in its early state, atropine is of value, because paralyzing the accommodation, keeping the eye focused for distant vision, it prevents undue convergence.

In diagnosing posterior synechia and seclusio pupilla atropine is of considerable value.

In various inflammatory conditions, because of its many-sided effects, it is the most valuable therapeutic agent employed in ophthalmic practice. In keratitis, whenever there is a complicated iritis or hyperæmia of the iris added to the corneal inflammation, atropine is indicated. It is a remedy of great utility. It exerts its antiphlogistic effect by contracting the blood-vessels, thus relieving the congestion. For the same reason it also exerts its anodyne effect; so that with the dilatation of the pupil the pain simultaneously diminishes. Some observers are of the opinion that atropine has a direct sedative action upon corneal lesions, because of the favorable results obtained from its use. It is, however, reasonable to assume that this favorable result is obtained indirectly through its antiphlogistic and analgesic effect. Some there are who believe atropine to be contra-indicated in superficial inflammations of the cornea, because its mydriatic effect augments the photophobia by admitting more light through the dilated pupil. While theoretically this may be true, yet, when the antiphlogistic and analgesic effect of the alkaloid is considered and carefully estimated, the balance will be in favor of its employment, especially so when the light can be excluded by smoked glasses. In diseases of the cornea, therefore, of almost every type, from the most superficial defect in the epithelium to the most severe form of suppurative keratitis, atropine is indicated, and is specially of great service in the interstitial and parenchymatous type of the disease.

In ulcers of the cornea atropine is of invaluable service. Its important therapeutic value is in keeping the iris away from the cornea, thus guarding against hernia of the iris and its manifold baneful results, in addition to its antiphlogistic and analgesic effect. The objection to the use of atropine in deep ulcers involving the stroma of the cornea is that it raises intra-ocular tension, thus compressing the channels of the corneal tissue, depriving the cornea of its nourishment, and thereby exposing its tissues to further degeneration. Again, in deep ulcers an increase in intra-ocular tension is likely to cause perforation. From the information gathered the increase of intra-ocular pressure is so slight as to be overlooked when the sedative effect of the drug is considered.

In the treatment of diseases of the iris and ciliary body atropine is an absolute necessity. It should be used freely and early, until the iris becomes fixed and quiet and its tissue is freed from both serum and blood. In iritis, regardless of its causal factors,—syphilitic, rheumatic, or traumatic,—atropine is indicated. Iritic pain is relieved by reducing the congestion and by placing the iris at rest through the mydriatic and cycloplegic action of the alkaloid. Its mydriatic action also prevents the formation of adhesions (posterior synechia) when used early. In cyclitis the pain is increased by the use of atropine because of an overengorgement of the ciliary vessels, which, while congested, are forced to receive the blood from the contracting vessels of the iris.

Diseases of the sclera, wounds, and recent injuries are always benefited by the employment of atropine. Diseases of the

uveal tract, choroiditis, and retinitis are also indications for its use, because, by paralyzing the ciliary muscles, it prevents the constant pulling of these members forward. Atropine is also indicated in circular iridodialysis.

Conditions in which Atropine is Contra-indicated.—Glaucoma: in all conditions with an increase of intra-ocular tension, in all cases with a tendency to glaucoma, atropine should be avoided, as it may precipitate an acute glaucoma. In people above 40 years of age atropine for the correction of errors of refraction should not be used. In cyclitis it will increase the pain, and should not be used. In ulcers of the cornea with impending perforation atropine should be used with the utmost care, and in radial iridodialysis it is contra-indicated.

While using atropine the following points should be borne in mind. The preparation should not be contaminated. The solution should be neutral in reaction. The preparation should not be too strong. While using it, the lacrymal sac should be compressed or the lid everted. The solution should be asepticized by a fraction of bichloride, especially when used in inflammatory conditions. The diagnosis must be certain. The eye should not be glaucomatous. No more than 3 drops daily should be instilled. In children 1 drop will suffice. It should not be used in persons more than 45 years of age. Aaron Brav (Therapeutic Gazette, April 15, 1904).

BACILLUS PYOCYANEUS, THE INTRACELLULAR TOXIN OF.

Bacillus pyocyaneus does contain an intracellular toxin. This toxin cannot be extracted from the cell by physiological salt solution. It is in part extracted by dilute sulphuric acid. Heat to 120° C. in the autoclave continued for thirty minutes only slightly diminishes the toxicity of the cell substance. The cell substance of *bacillus pyocyaneus* contains a hæmolysin, which may be extracted from the cell, either in the fresh state or after treatment with alcohol and ether by physiological salt solution. The minimum lethal dose of the cellular toxin is for guinea-pigs when given intraperitoneally about 1 part of the cell substance to 50,000 parts of body-weight. When injected subcutaneously in guinea-pigs in the proportion of 1 part of the cell substance to 10,000 parts of body-weight or less no permanent ill effect results. Subcutaneous injections do not give immunity to subsequent intraperitoneal injections. Donald MacIntyre (Journal of the American Medical Association, April 23, 1904).

BACTERIA, USEFUL.

One is apt to become so deeply impressed with the fact that bacteria are producers of disease that one may lose sight of the equally important fact that there are groups of bacteria which are useful to mankind and even essential to our well-being. The most important group in this large class of micro-organisms is that of the normal inhabitants of the intestinal tract. It is well known that the intestinal tract of most of the warm-blooded animals is literally swarming with bacteria of various kinds, but their importance to the host is often greatly underestimated. Indeed, it has been thought that the body would be better off without them, but this seems to be a mistake, as is made evident by the following facts pointed out by Strasburger (Münchener medicinische Wochenschrift, 50, 2289, 1903). Experiments on birds and mammals indicate that the more highly organized animals cannot live very long if all bacteria are

excluded from the intestine. This is especially true of those animals which live largely on a vegetable diet, because in man and many of the highly organized warm-blooded animals the intestine does not secrete an enzyme that is capable of dissolving cellulose, and thus liberating the nutritive material inclosed in the vegetable cells, as is the case, for instance, in snails. The coarser vegetable foods might, of course, be reduced, by mechanical means, to such a fine state of subdivisions as to do away with the necessity of dissolving the cell membranes in the process of digestion. This task is said to be performed in man by the *clostridium butyricum,* and in the herbivora by the *bacillus amylobacter,* which are normal inhabitants of the intestinal tract, and are probably the same organism.

Most foodstuffs are, under certain conditions, decomposed by bacteria, and this decomposition may be either putrefaction or fermentation. In the small intestine the conditions for putrefaction are most favorable, on account of the temperature and the richness in proteid of the contents, but it is prevented by fermentation by the carbohydrates, caused by the *bacillus lactis aërogenes* and the *bacillus coli communis.* These organisms serve thus as a protection for the body, because if putrefaction were allowed to go on in the small intestine it would soon cause symptoms of intoxication, due to absorption of toxic products. It must be remembered that putrefaction in the small intestine would be quite different from that going on in the large intestine, because in the former are found partly digested proteids, which chiefly are absorbed before the food reaches the large intestine. In addition to the protection against putrefaction and the consequent auto-intoxication, the fermentation in the small intestine is said to kill many pathogenic bacteria which are taken in by the mouth and pass through the stomach unharmed.

Another important group of bacteria is constituted by the nitrifying organisms. It is well known by the expert agriculturists that a soil which is poor in combined nitrogen is not suitable for vegetation. This soil could be improved by adding compounds containing nitrogen, but that is impracticable. Another and more practical method of enriching this soil consists in growing in it the leguminous plants, especially clover. These plants have the power of increasing the nitrogen content of the soil, but it has been found that the plants alone do not possess this power. It is necessary that the soil should contain nitrifying bacteria, most important of which is the *bacterium radicicola.* This organism grows in the nodules on the roots of these plants, and builds up nitrates from atmospheric nitrogen. The nitrates are taken up by the plant, and when the plant dies they get into the soil and render it more suitable for other vegetation. In Germany and other European countries large tracts of barren land have been made productive by inoculating the soil with the *bacterium radicicola* and growing leguminous plants in it for several years. Our own agricultural department at Washington is now carrying on experiments in the hope of improving some of the arid land of our Western States. Editorial (Journal of the American Medical Association, March 26, 1904).

BLOOD-SERUM FROM CASES OF ACUTE MENTAL DISORDERS, THE ACTION OF, ON BACILLUS COLI COMMUNIS.

In 50 per cent. of the total cases of acute insanity there was agglutination,

whereas this was present in only 15.5 per cent. of the controls. The agglutination was partial in a large proportion of the cases (39 per cent.). In those forms of the disease in which the cases were sufficiently numerous to permit of percentages being taken (mania and melancholia), the preponderance of partial over good agglutination was also obvious. The percentage of agglutination (good and partial) was greater (58.5) in the cases of melancholia than in those of mania (45.2). The percentage of good agglutination was greater in melancholia than in mania. Even when the disease is quite recent in duration there is as often as not a failure to agglutinate. A. V. Johnson and Edwin Goodall (British Medical Journal, April 9, 1904).

CARCINOMA CERVICIS UTERI AND THE URETERS, RELATION BETWEEN, AND ITS SIGNIFICANCE IN THE MORE RADICAL OPERATIONS.

The relation between carcinoma cervicis uteri and the ureters manifests itself clinically in renal insufficiency resulting from a compression of the ureters by the growth and in the frequency of accidental injury to the ureters occurring during operation for the removal of the growth, there having been in the Johns Hopkins Hospital 19 cases of accidental injury to the ureter in 156 hysterectomies for carcinoma of the cervix as compared with only 11 similar injuries in 4513 other major gynæcological operations.

A study of the anatomical relations between the ureters and the other pelvic structures shows that the ureters follow the curve of the pelvic walls, and the ureteral orifices are 1.5 to 3.5 centimeters apart, the distance varying in individual cases and in the condition of the bladder, whether distended or contracted. Under normal conditions the relation between the cervix and the ureters depends upon the position of the uterus—whether in the left or right side of the pelvis—and also upon the size of the cervix. At the entrance of the ureters into the parametrium they are at a distance equal to the inside transverse diameter of the pelvis apart at that level and so may be some distance from the cervix, even as great as 3 to 3.5 centimeters. On the other hand, near the bladder the distance between them is much less, and this distance on one side may be less than 5 millimeters in the left and right displacements of the uterus. Unfortunately the lower portion of the parametrium is apt to be the part first invaded by a direct extension of the growth. In retroposition of the uterus, the entire pelvic course of the ureters may be situated anterior to the uterus. This relation may also be greatly distorted by other pathological conditions and by steps in gynæcological operations.

The pelvic portion of the ureter lies in a sheath which protects the ureter and its periureteral arterial plexus, and furnishes a channel in which the ureter may slide as it contracts. This sheath is composed of fibrous tissue, in places reinforced by small muscle bundles, and is apparently derived from the tissue through which or along which the ureter passes, and on this account it is very intimately connected with the structures found in the parametrium, and its separation from the parametrium is difficult. The lower portion of the ureter is reinforced by muscle bundles also giving rise to a sheath, which Disse claims originates from the ureter, and not from the bladder, as they apparently do. The fibrous sheath referred to above, while fusing with the muscle sheath, encircles the upper end of it and apparently is

a separate and distinct sheath. The anatomical relation between these sheaths needs further study. Recognition of the ureteral sheath is important in all operations involving the lower portion of the ureter, but especially so in the more radical operations for carcinoma cervicis uteri, for in the extension of the growth this sheath becomes involved and hypertrophied, thus protecting the ureter and later, as the growth extends, compressing it and causing renal insufficiency.

Pathologically, the close relation between carcinoma cervicis uteri and the ureters shows itself in the distension of the cervix by the growth, thus diminishing the distance between the ureters and the cervix, and in the direct extension of the growth from the cervix into the parametrium. As the distance between the ureter and the cervix may be less than 5 millimeters in the lower portion of the parametrium,—which, unfortunately, is the part of the parametrium first involved by a direct extension of the growth,—it takes but very little involvement of the parametrium to reach or extend beyond the ureters. It also shows itself in the large parametrial lymph-node occasionally found at the place where the uterine artery crosses the ureter; in the small parametrial lymph-nodes scattered throughout the parametrium; in the intravascular lymph-nodes which protrude into the lymph-channels like sponges and may be present in large numbers in these cases; in the other structures of the parametrium as sheaths of nerves, ganglia, lymph-spaces, blood-vessels, etc.

From a study of the parametrium in these cases it becomes evident that the ureter passes through tissue which should be removed in every instance of cancer of the cervix, for it is impossible to diagnose clinically a cancerous parametrium, and there is no relation between the size of a primary growth and the parametrial involvement, for the parametrium may be involved in a small growth and free in a large one.

Two ways of removing all the parametrial tissue present themselves: The dissecting free of the ureters and, after drawing them to one side, the removal of all the tissue from pelvic wall to pelvic wall, including the lower portion of the ureters, and implanting the renal ends of the ureters into the bladder.

Based on anatomical studies, animal experimentation, and clinical experience, two anatomical structures should be preserved, namely: the blood-supply of the ureter and the ureteral sheath.

When one ligates the internal iliac or its anterior branch, the ureteral arteries completing the lower end of the periureteral arterial plexus are cut off and the lower ends of the ureters must be nourished by blood from the upper ureteral arteries, which are able to do this if the periureteral arterial plexus is intact. If in addition the ureter is dissected free from the ureteral sheath, which is quite easy to accomplish,—as all one has to do is to split it open and shell out the ureter,—there is danger of injuring the periureteral plexus and liability for ureteral necrosis. In addition, the ureter now lies as a loose cord in the pelvis, its sheath has been destroyed, and it becomes imbedded in scar tissue with the chance of interference with its function through the ureteral strictures arising from its being imbedded in this tissue, hence predisposing the kidney to ascending renal infection. On the other hand, the dissecting free of the ureter with the sheath intact is very difficult, because the sheath arises from the pelvic structures and, in addition, in some cases, would certainly leave

cancer in the pelvis. The writer is unable to see any operative advantages to be gained in the ligation of the internal iliac artery or its anterior branch over the ligation of the uterine artery alone, and it increases the liability of ureteral necrosis and predisposes these parts to infection.

Removing all the tissue from pelvic wall to pelvic wall, with the lower ends of the ureters, offers the greatest chance for a cure, and at the same time the ureteral sheath and periureteral arterial plexus may be preserved, for the portion of the ureter which is above the parametrium lies on the peritoneum, and this peritoneal flap may be brought down and, with the ureteral sheath, sutured to the bladder. The suturing of the sheath and the peritoneum to the bladder relieves, in a measure, the tension of the implantation, and the periureteral arterial plexus is preserved and also the ureteral sheath. Against this procedure are the uncertainties of the uretero-vesical implantation and the danger of ascending renal infection. Careful work should minimize the chance of failure in the uretero-vesical implantation, and possibly the formation of a vesico-vaginal fistula at the close of the operation may lessen the danger of the ascending renal infection. It can be seen that the operation which clinical experience and the study of the parametrium demands as the one which will give the greatest percentage of cures is a very serious one and is attended with uncertainties. Whether this operation ever will be justifiable in all cases experience alone can decide. In those cases in which the ureteral sheath is involved by the growth it should be the operation of choice; on the other hand, when the ureteral sheath is not involved, it may be possible to dissect the ureters free with their sheath and thus preserve the lower ends of the ureters. The greatest difficulty comes in making a diagnosis, *for only by the use of the microscope can it be definitely decided whether or not cancer is present in the parametrium.* J. A. Sampson (Bulletin of the Johns Hopkins Hospital,' March, 1904).

CARCINOMA OF THE COLON.

From an analysis of 25 consecutive cases of carcinoma occurring in different parts of the colon, the author observed the following points:—

In the cæcal region the glands involved were the so-called ileo-colic group, which are said to be three or four in number and to lie in the angle between the ileum and colon. These glands are more than three or four in number, and they have a wider anatomical distribution than simply in the angle between the ileum and colon. They form quite a chain, which runs for some distance along the ascending colon; and they also lie in the terminal part of the mesentery. In 6 consecutive cases they were seen lying on the inner side of the ascending colon, and in 5 they were found in the termination of the mesentery. In the sixth case the cæcum and ascending colon were removed with the lowest $1\,^1/_2$ inches of ileum; the patient being still in excellent health (eighteen months after the operation), so that no chance has been offered of examining the glands in the mesentery. In this case, owing to an abnormally-lying transverse colon, more bowel was removed than was intended. Perhaps this accounts for the good results.

In the region of the hepatic flexure the author has only had the opportunity of examining 2 cases, and in each of these the glands involved were a dis-

tinct chain running for some distance along the lower border of the transverse colon.

In the region of the splenic flexure 4 cases have been observed, and in each case the glands involved were a chain running along the lower border of the transverse colon nearly to its center. In 2 cases the growth was just below the splenic flexure, and in each the same group of glands was involved.

In the region of the sigmoid colon and upper rectum 8 cases were examined. The glands from this area of the colon are spread out in the mesentery; from them the lymph-flow converged to a series of glands situated near the root of the mesentery (colic mesentery).

The author has examined the glands which lie along the aorta and vena cava in several cases and never found them enlarged.

An attempt to remove these various groups of glands involves, of necessity, the sacrifice of more bowel than it is usually the custom to remove, and, in regard to this point, the author makes the following suggestions:—

In cæcal growths some inches of ileum with its mesentery should be removed. In one case of excision of the cæcum in which the patient died eight days after the operation, the author detected post-mortem the glands in the termination of the mesentery full of cancer. The greater part of the ascending colon should also be removed, practically to the hepatic flexure. In growths in the region of the hepatic flexure the removal of the corresponding half of the transverse colon, with as much of the mesentery as possible, is suggested. In the splenic region, including the growths just below and really in the upper part of the descending colon, the removal of the corresponding halves of the transverse colon and mesocolon should be practiced.

In the recto-sigmoid growths practically the whole of the mesosigmoid should be removed, and this means a sacrifice of nearly the whole loop of bowel. In many, probably the majority of, cases this would entail the formation of an artificial anus, since it would be impossible to secure apposition of the cut ends of bowel. Should this be so, the lower end of the bowel had better be sewn up. In some cases it may be possible to leave some sigmoid colon, and, after freeing this loop by division of the peritoneum (taking the greatest precautions to leave vessels uninjured), to draw it down and unite it to the rectum low down, through a perineal wound. This possibility depends entirely on the length, breadth, and attachment of the mesentery of this loop of bowel. H. S. Clogg (Practitioner, April, 1904).

CHLOROFORM ANÆSTHESIA, RESUSCITATION AFTER APPARENT DEATH IN.

Deep anæsthesia is always a condition of danger. Therefore every precaution must be taken to guard against danger. When serious accident occurs a well-matured plan of treatment should be in readiness which meets the indications in the best possible manner. Death usually resulting from failure of the vital centers, the first indication is their stimulation. Artificial respiration, tongue traction, and heart compression should be first tried. The application of cold, ether being poured on the abdomen, according to Hare; inversion, suspension and succession, dilatation of the sphincter ani, and electricity are worthy of trial if the others fail.

Hypodermic injections during the stage of collapse are a waste of time. The arterial pressure being *nil*, there can

be no effect from medication unless the injection be into the heart. They may do good before cardiac arrest or after the contractions are resumed, and then the remedies of value are limited to a few. Injections of ether and alcohol in any form are apt to be harmful. Their effect in overdose is so similar to chloroform in their action on the vital centers that danger is only added by their use. Mechanical efforts at resuscitation must not be so rough that internal organs are injured. That this is possible is proved by reported cases where the liver was torn, blood found in the pleura, and the tongue wounded. Since it cannot be known when the molecular changes separating true from seeming death take place, efforts at resuscitation should continue for at least one hour. Emil King (American Medicine, April 16, 1904).

CONSUMPTION, TREATMENT OF.

With our present knowledge and clinical experience in the treatment of this disease, diet, hygiene, and fresh air are universally accepted as the foundation of all scientific treatment, although it is equally acknowledged that, by themselves alone, they are not sufficient, but must be supplemented by symptomatic treatment in the way of antisepsis, tonics, and surgical interference when necessary. The probability is that within the next three years notable advances will be seen in immunization and the stimulating effect of light. In the meantime the physician who would prescribe climate alone is equally culpable with him who would ignore climate, diet, and hygiene in favor of medicinal or other treatment. The man who would justly earn the gratitude of his patients will be he who will prescribe a judicious, scientific combination of the two basic lines of treatment. J. E. Stubbert (Medical News, April 16, 1904).

DIABETES, DIET IN.

Suitable diet is considered as important a factor in the treatment of diabetes as is the administration of drugs. The fact has been for some time recognized by the medical profession that abstinence from all articles of food which may be converted into glucose causes a marked decrease in the quantity of glucose in a diabetic patient's urine, and in every respect tends to an improvement in the condition of the majority of those afflicted with diabetes.

Sir James Sawyer, of Birmingham, in the British Medical Journal, March 5th, points out that until the researches of Mossé two years ago, it was the therapeutic rule to withhold potatoes in saccharine diabetes. Mossé's researches led him to conclude that potatoes, far from being harmful, form a useful and beneficial food in glycosuria, and that they are capable of being substituted for ordinary wheaten bread in daily proportions sufficient to maintain the alimentary ratio—that is to say, in the proportion of two and one-half to three of potatoes for one of bread. Mossé found that a daily ingestion of potatoes in quantities of from 1000 to 1500 grammes caused, roughly, from 2 pounds to 3 pounds avoirdupois diminution of the glycosuria, quick relief of thirst, and general improvement in the patient. The reason for this beneficial action of potatoes in the feeding of diabetic persons is, according to Mossé, because the salts contained in potatoes are chiefly those of potash, and potash exerts a retarding influence on the progress of diabetes.

Sir James Sawyer states that his own experience in practice during the past

two years is confirmatory of Mossé's conclusions, and he goes on to declare that in his opinion the beneficial results of Mossé's discovery and teaching as to the use of potatoes as a food in diabetes might well be carried much further in the dietetics of diabetes than merely to the extent of the free allowance of properly cooked potatoes. The writer proposes that the therapeutic difficulty as to the prohibition of ordinary bread for a diabetic may be met advantageously by making bread, cakes, and biscuits for diabetes by using the "flour" of properly cooked potatoes instead of the flour of grain. Sawyer's dietary for diabetics is as follows: May eat butcher's meat of all kinds, excepting liver, pork, ham, bacon, poultry, and game, or potatoes steamed in their "skins." Fish, oysters, crabs, lobsters, animal soups (not thickened excepting by potatoes), mutton-broth, and beef-tea. Bran and potato bread or biscuits, potato cakes, eggs, cream, butter, cheese, greens, water cress, mustard and cress, lettuce, mushrooms, nuts, and jelly or custard (unsweetened).

May not eat any bread or biscuits but those made of bran and potato, sugar, asparagus, broccoli, cauliflower, carrots, parsnips, French beans, peas, turnips, arrowroot, macaroni, rice, sago, tapioca, vermicelli, pastry, excepting potato cakes, puddings, and fruit (fresh and preserved).

May drink water, tea, coffee, soda-water, claret, hock, spirits and water, unsweetened; bitter ale, very sparingly; milk, very sparingly.

May not drink cocoa, chocolate, champagne, porter, stout, home-made wines, liquors, cider, sweet wines, and ale.

At one time the diabetic was greatly restricted in diet, but, owing to the new views, promulgated first by Mossé, the sufferer from the disease has a wide choice of food and need no longer live a life of rigid self-denial. This more generous *régime* of living is to his physical advantage. Editorial (Medical Record, April 2, 1904).

DIABETES, EXCRETION OF OXALIC ACID, ETC., IN.

The amount of oxalic acid in the urine of diabetes is not regularly increased, but W. von Moraczewski (Zeitschrift für klinische Medicin, vol. li, Nos. 5 and 6) obtained high figures more frequently than in other conditions. The influence of diet is somewhat different from the ordinary, for the addition of meat increases the amount in severe cases. With a strictly fatty diet and after the ingestion of calcium salts, oxalic acid, the conjugated sulphuric acids, and indican are freely excreted, but a distinct relation between oxalic acid and sugar is not always present. Both oxalic acid and acetone fall in amount after every change of diet, are influenced alike when phosphate of lime is given, but after vegetable diet the amount of oxalic acid, indican, and conjugated sulphuric acid falls, while that of acetone rises. In all cases the urine was rich in indican, and, after milk diet, in ammonia, especially after calcium. Urea and uric acid were found diminished and chlorides increased, especially after vegetable diet. There does not seem to be anything specific in the high amounts of oxalic acid, for the author has obtained equally high and even higher figures in hepatic disorders. (Medical News, April 9, 1904.)

DRINKING-WATER, SOME TOXICOGENIC GERMS FOUND IN.

Of 709 samples of drinking-water sent by health officers and other physicians to the hygienic laboratory of the Uni-

versity of Michigan between October 1, 1888, and December 31, 1903, 213, or 30 per cent., contained toxicogenic germs. Ten samples, or 1.4 per cent., contained no bacteria capable of growth at 38° C. Of these 10 samples, 4 were from deep springs, and 6 from the Great Lakes—4 from Lake Superior and 2 from Lake Huron. Waters that contain no germs capable of growth at 38° C. or higher cannot cause disease. Waters that contain no toxicogenic germs are not condemned. Waters that contain as their only toxicogenic organism a typical colon bacillus are not condemned. By a typical colon bacillus is meant one which is nonmotile, produces indol abundantly, produces acid in milk, coagulates milk within twenty-four hours, and evolves more or less gas from glucose and lactose cultures. Waters which contain as their only toxicogenic organism a typical proteus bacillus are not condemned. It must be remembered that other germs cannot be excluded until after repeated plating of the cultures made from the heart's blood fails to show their presence. Waters that contain any member of the venenosus group or any such germ marked "doubtful" by the author are condemned.

The writer has never found in drinking-water a germ that responded to the Widal test. Sixteen years of experience with this method of water analysis convinces the writer that the results given by it are in the majority of instances trustworthy. V. C. Vaughan (Journal of the American Medical Association, April 9, 1904).

DYSENTERY, CHRONIC, OLIVE-OIL IN THE TREATMENT OF.

The success of this treatment in chronic gall-stone disease led to its employment, in chronic dysentery and enterocolitis of tropical origin, by the author. He bases his suggestion on the analogy of these two conditions, which may seem far-fetched; but on closer consideration it is found that in chronic gall-stone disease there is frequently an hypertrophy of the liver, while in chronic dysentery there is usually a hyperæmia or atrophy of the same organ. Other pathological conditions common to both diseases are also present and are due to practically the same set of causes—gastro-intestinal fermentation and absorption of the putrefactive products in the liver. About 75 cases of intractable tropical dysentery were treated about as follows. The olive-oil must be pure and the author prefers that produced with especial care in California. During the first period the patient is given 30 cubic centimeters of oil three times a day, which is increased to 60 cubic centimeters four times a day at the end of the first six days. At first nothing but milk is given, followed later by scraped beef and eggs. During the second period 90 cubic centimeters is given three times daily, until convalescence is established and the patient regains his full weight, which may take from one to two months. During the third period the patient is allowed to get up, restored to a full diet, and the oil is gradually decreased until recurrences are no longer liable. The oil may best be given at first with equal quantities of hot milk on an empty stomach about an hour before meals. H. H. Rutherford (American Medicine, March 12, 1904).

ETHYL CHLORIDE, THE USE OF, AS A GENERAL ANÆSTHETIC, IN GYNÆCOLOGY.

In gynæcological work ethyl chloride will be especially employed for administration to allay the pain and relieve mus-

cular contraction in abdominal pelvic examinations. Its employment will frequently permit of an accurate diagnosis in what would otherwise be an obscure case. The short time required for anæsthesia, the rapidity with which the patient will recover from its effects, and the decreased tendency to nausea and vomiting will allow its employment in office practice, with the assurance that the patient can return home without the need of prolonged attention.

The same indications will lead to its employment in all operations of minor character where prolonged anæsthesia will not be required. In enfeebled patients requiring vaginal incision for pelvic drainage it is an ideal agent, for its administration need not be begun until everything is prepared for the incision, so that the patient will be under its influence only a few minutes.

Probably its most effective employment will be as a preliminary to the administration of ether or chloroform, by which the distress and sensation of asphyxia produced by the latter agents will be avoided. A nervous woman may be brought quickly under the influence of the ethyl chloride, and the ether or chloroform follow without the patient experiencing any of the ordinary discomforts of an anæsthetic, and, consequently, without a struggle. Her convalescence from the effects of the anæsthetic is more rapid because she has not undergone so thorough a saturation with it.

The principal disadvantages of the agent as a general anæsthetic are that the patient passes under and out of its influence so quickly that the administrator must be unusually expert to avoid, on the one hand, profound anæsthesia, and, on the other, the emergence from its effects at an important stage of the operative procedure; and that the expense of the drug excludes its use in a general clinic, but the increased employment of this agent which must necessarily follow the general recognition of its advantages will doubtless result in a reduction of its cost. E. E. Montgomery and P. B. Bland (Journal of the American Medical Association, April 2, 1904).

FRACTURE OF THE PATELLA, TREATMENT OF RECENT.

The choice of treatment of these cases may be summarized as follows:—

The conservative treatment of fracture of the patella is applicable to blow or tear fractures in which the separation of the fragments is not greater than one-half inch when the knee is flexed to a right angle, and in which there is no great joint tension. Conservative treatment consists in fixation for ten days, the application of adhesive strips to approximate the fragments, the use of elastic bandages to prevent inflammatory exudation, and the employment of massage and passive movements.

All fractures of the patella, independent of the amount of fragment separation, attended by marked and immediate joint tension should be treated by the open method.

All fractures of the patella in which the fragments are separated more than one-half inch when the knee is bent to a right angle should be treated by the open method; the torn tendinous expansions of the quadriceps being closed by mattress suture, and the patellar fragments being united by silver wire, the insertion of the latter being facilitated by the use of a bone drill with an eye in its boring end. Edward Martin and T. T. Thomas (Therapeutic Gazette, February 15, 1904).

GONORRHŒA, YEAST TREATMENT OF.

Abraham (Zentralblatt für Gynäkologie, February 27, 1904) has instituted a number of experiments to determine the bactericidal influence of yeast upon various kinds of bacteria. He found that the gonococcus was destroyed most quickly, while from five to seven times as long was required to kill off streptococci and staphylococci. The conclusion must not be reached that yeast is a specific against the gonococcus, but that this germ is more quickly destroyed by the yeast, which has a deadly influence upon all forms of cocci. Nevertheless, the yeast treatment of gonorrhœa is clinically a specific, forming an unusual harmony between clinical and bacteriological experiments. Still, the entrance of the gonococci into the cells and the many folds in the mucous membrane make the bactericidal action of the yeast more difficult and prolong the period necessary to a cure. (New York Medical Journal and Philadelphia Medical Journal, April 2, 1904.)

GOUT AND LITHÆMIA, DEFICIENT UREA EXCRETION IN.

Persistent deficient urea excretion is always present in, and characteristic of, chronic gouty conditions. The total urea output in gout is considerably lower than that found in chronic Bright's disease, about two-thirds of the amount in other miscellaneous chronic disorders, and only about three-fifths of the quantity excreted in health. Deficient urea excretion is an important factor in the differential diagnosis between gouty and chronic rheumatic troubles, and between lithæmia and certain nervous conditions dependent on other causes. It is not present in chronic rheumatic conditions. It points to perverted hepatic metabolism, and lends color to the Murchison theory of gout, there being in the cases discussed no clinical evidence of kidney trouble in support of the renal theory. A diminished uric-acid excretion is to a certain degree commensurate with that of urea. Gout, goutiness, and lithæmia are of the same origin, and but modifications of the same disorder. Chronic gouty conditions are, in general, more amenable to treatment, especially to balneotherapy, than chronic rheumatic affections. R. K. Macalester (Medical Record, April 16, 1904).

HÆMATURIA, UNILATERAL, FROM CHRONIC NEPHRITIS.

A prominent cause of renal hæmaturia, which is often unilateral, is chronic interstitial nephritis, often involving the glomeruli. This, together with other obscure causes, must be excluded before a diagnosis of "essential hæmaturia" can be made. Decapsulation of the kidney is indicated in these cases, as it offers a good prospect for cure of both the hæmaturia and the nephritis. Nephrectomy should be discarded on account of probable involvement of the other kidney. Leonard Freeman (Annals of Surgery, March, 1904).

HÆMOGLOBIN, DIGESTION AND ABSORPTION OF.

The administration of iron, in the form of powdered hæmoglobin, to rats leads to an increase in the number of their red corpuscles and the amount of hæmoglobin in their blood. There appears every reason to suppose that the hæmoglobin is actually absorbed; the intensity of the ammonium sulphide reaction is much greater than in animals kept on a diet poor in iron. The main situation for absorption, as judged by this reaction both to the naked eye and

to the microscope, is the extreme pyloric end of the stomach and the first few inches of the duodenum. The spleen appears to be the principal organ for storage. Hæmoglobin in the stomach is converted into acid hæmatin. This is the pigment of what clinical observers call "coffee-grounds" in the vomit of cases of hæmatemesis. Acid hæmatin, after it is formed, is slowly precipitated, and is indiffusible through parchment paper. It therefore seems unlikely that much of it is absorbed. By the pancreatic juice, however, it is rapidly dissolved, and forms alkaline hæmatin, which diffuses through parchment. This will account for absorption in the first part of the duodenum. Lower down, where the reaction once more becomes acid, absorption ceases. It is well known in many animals that the reaction of the intestinal contents becomes alkaline owing to ammonia formation in the large bowel, but in the rat the author found that the contents of the cæcum and first part of the colon were still acid. Alkalinity does not occur till the last part of the colon is reached. W. D. Halliburton (British Medical Journal, April 9, 1904).

HARELIP AND ITS TREATMENT.

The nostrils should be carefully cleansed with boric acid and sterile water; also the lips and mouth. The child should be etherized but lightly, so that the coughing reflex will prevent inhalation of blood. The lips and cheeks should be thoroughly free so as to take all tension from the intended line of sutures. The coronary arteries should be controlled with the fingers. The flaps should be cut and the stitches put in the mucous membrane, to be tied later, the "principal" suture being well back from the edges of the wound and not tied too tightly. The edges should be approximated carefully with superficial sutures. The blood should also be washed from the stomach and the wound dried and dusted with aristol. C. R. L. Putnam (Pædiatrics, February, 1904).

HERNIA.

From a study of ninety-one cases for the relief of various forms of hernia, with their complications, the writer reaches the following conclusions:—

The safety of the patient as well as the lowering of the mortality in strangulated hernia depends on gentle taxis being exerted for a short period, which if unsuccessful should be succeeded by an immediate operation. Herniotomy for the relief of strangulated hernia in the aged is not a dangerous operation, provided it is performed as soon after the constriction has taken place as possible. An inflamed hernia should not be treated by taxis, but should be subjected to an operation.

No one method of attempted radical cure is applicable to every variety of rupture. The Bassini is suitable to the largest majority. The Bloodgood for those in whom a large abdominal ring and weak or atrophied conjoined tendon exist. The relief of special forms and conditions of hernia must be met by the ingenuity of the surgeon, selecting the operation to the indications presented. The palliative operation is applicable to a large number of selected cases of reducible hernia, when the protrusion cannot be kept within the abdominal cavity by means of a truss, and also in some forms of incarcerated hernia. A radical cure may be safely attempted on patients who have reached their sixth year and on those who have arrived at their sixtieth year. Individuals who submit to what is known as the "palliative operation"

should continue to wear trusses after recovery.

In cases not applicable to a routine method of operation the surgeon should strive to do what in his judgment would be the best means of effecting the removal of the entire neck of the sac on a level with the parietal peritoneum. He should, if possible, firmly close the opening in the peritoneum after the removal of the entire neck of the sac on a level with the parietal peritoneum. He should, if possible, firmly close the opening in the peritoneum after the removal of the sac; he should obliterate the depression of the peritoneum in the vicinity of the internal abdominal ring, bring in apposition the structures, and close the apertures which form the canal through which the rupture protrudes. An aseptic result following a radical operation with primary union is essential to obtain a permanent cure of hernia. In cases of undescended testicle associated with hernia every effort should be made to save and transplant the organ. The method of operating for umbilical hernia suggested by Mayo is probably the most satisfactory for that variety hitherto suggested. Absorbable sutures are preferable to those of nonabsorbable material. Orville Horwitz (St. Louis Medical and Surgical Journal, April, 1904).

HYPERTROPHY OF THE PROSTATE.

The catheter has as wide a range of usefulness as it ever had in the palliation of obstructing prostatic hypertrophy. The various operative procedures at present at our command are to be resorted to, with the exception of certain small classes of cases referred to, after the catheter has ceased to palliate. The time for this operative interference is at the moment when the catheter has ceased to palliate, and not after months or years of further and unavailing struggle to make it do so. The more radical operation of enucleation, on the one hand, and the Bottini operation, with its various modifications, on the other, are not procedures of the same kind, do not have the same object in view, and are in no sense to be weighed in the balance, the one class against the other. They should rather be contrasted, the one class as radical operations aiming at a cure, and the other as efficient palliating procedures, each having its own distinct indications for its appropriate use. Paul Thorndike (Medical News, April 23, 1904).

IODINE, ORGANIC, ACTION OF.

The principal *desiderata* in iodine compounds for internal medication are the presence of iodine in sufficient quantity to be productive of physiological effect, the absence of irritating properties, assimilability, and the absence of other chemical compounds which might directly or remotely interfere with the action of the iodine. The writer claims that these *desiderata* are all to be found in the organic preparation of iodine known as iodonucleoid. He found by experience that it was nonirritating and readily assimilated. It was less likely to produce iodism than the other salts of iodine, and, being perfectly stable, could be administered in pill or powder form. While he is not prepared to state that it fills the rôle of iodide of potassium in every instance, he believes that in many cases which are intractable to the action of iodide of potash, excellent results are obtained from the iodonucleoid. Experiments were also made to determine whether more iodide could be retained in

the body from the potassium iodide or from the iodonucleoid. It was found that 8 per cent. of iodine was retained from the potassium iodide, and 64 per cent. from the iodonucleoid. G. F. Lydston (Medicine, March, 1904).

JAUNDICE, PATHOGENESIS OF.

Ugolini and Mazzocchi (Il Policlinico, October, 1903) record the results of 12 experiments on dogs, whose bile and thoracic ducts they tied, coming to the conclusion that biliary absorption occurs through each set of vessels. They found that whenever the ductus choledochus was ligatured, whether the thoracic duct was tied or not, jaundice supervened. In many experiments it was found that the bile appeared in the lymphatics before it could be detected in the blood, but it should be remembered that the dilution in the blood is much greater and the detection of small quantities of bile not easy. That absorption takes place by the blood-vessels only when the thoracic duct is closed is disproved by certain experiments made by the authors, for jaundice occurred equally well when this duct was slit so as to make a fistula instead of being ligatured. If a double intracellular reticulum exists, as is described recently, but which the authors were unable to recognize, the problem of biliary absorption would be much simplified. Absorption of bile may take place in the interlobular spaces, or within the lobule by the passage of the bile from the intercellular biliary ducts into the lymphatic vessels, or again it may be transferred to the small canaliculi which carry the glycogen and urea into the blood. Probably what determines which of these three modes of absorption should take place is the nature and duration of the obstruction. (British Medical Journal, April 16, 1904.)

LEUCOCYTE COUNTS, STAIN APPLICABLE TO DIFFERENTIAL.

The procedure is the same as that in counting red cells. The blood is drawn up to the mark 0.5 in a red-blood-counting pipette, but instead of diluting with Gowers's or Toisson's solutions (up to the mark 101) a staining fluid of the following composition is used for dilution: (1) 12-per-cent. formalin (Schering, 12 volumes; water enough to make 100 volumes); (2) 1-per-cent. aqueous solution of sodium chloride (c. p.); (3) ½-per-cent. aqueous solution of eosin (yellowish); (4) Unna's polychrome methylene blue. Equal volumes of these four solutions are mixed, preferably in the succession above given, and then filtered. The filtrate is the fluid taking place of Gowers's or Toisson's solutions in the pipette. It produces within fifteen to thirty minutes at ordinary room temperature, quicker at body-temperature, a different stain of the leucocytes, bringing out the protoplasm, nuclei, and granulations. Onuf (Proceedings of the American Association Pathologists and Bacteriologists; Medical News, April 9, 1904).

LIGHT THERAPY.

The author considers that the use of dark-blue incandescent light produces excellent results when locally applied in neuralgia and eczema, and his statistics seem to prove his assertion. He also states that the treatment may be applied in leg ulcers. The duration of each treatment is not more than fifteen minutes and the number of sittings should not be more than four per week. He believes that the beneficent effect is due principally to the action of dry heat, and that the chemical or specific action of the light rays plays but a very subordinate part in producing the result. Keller-

mann (American Journal of the Medical Sciences; from Centralb. für die gesammte Therapie, No. 1, p. 16, 1904).

MORPHINE HABIT.

The writer uses mandragorin in the treatment of morphinism, giving 5 drops of a specially prepared solution hypodermically with $^1/_8$ grain of pilocarpine, repeating this dose every two hours. If the symptoms of abstinence manifest themselves, the dose may be increased until comfort ensues, even if 15 or sometimes 20 drops of the solution are taken. At the end of forty-eight hours the antidotal and eliminative effect of the remedies is usually complete. A dose of $^1/_8$ or $^1/_4$ grain of morphine will then produce the same effect as it would before the morphine addiction. For heart-weakness strychnine nitrate and sparteine should be given hypodermically for three or four days afterward, and thorough eliminative measures should precede the dosing. W. S. Birge (Boston Medical and Surgical Journal, April 14, 1904).

MOUNTAIN AND SEA CLIMATE, THE EFFECT OF, ON MAN.

A study of this subject has been made by the author, who finds that the test of the electrical conditions give the same results in each, and the effects on the metabolism of the body are approximately the same. In high altitudes the rarity of the air is probably a minor factor, the benefits being mainly the result of the purity of the air, its constant motion, and the abrupt changes from warm to cold. All of these, however, may be found at the seashore. The indications for either one or the other should be carefully examined. Where overexcitement or overstimulation is already present the patient should not be sent either to the seashore or the mountains. These places are only for those who are possessed of a reserve energy. It is not definitely known whether the climate at the seashore has the same effect on the blood as that of the mountains, but the writer believes in the possibility. A. Lowry (Deutsche medicinische Wochenschrift, February 4, 1904).

NERVOUS DISEASES, INJURY AS A CAUSE OF.

The writer discusses the severe nervous disorders which are sometimes attributed to trauma, such as multiple sclerosis, though there is very little evidence of this condition being primarily caused by trauma. Similarly with locomotor ataxia. Trauma may be the exciting cause in a syphilitic subject, but as to its being the primary cause, he questions it. He doubts also whether it can be secondary to injury of the peripheral nerves, causing an ascending neuritis, as has been held by some authors. Paralysis agitans is another disorder which is frequently ascribed to trauma. The writer has no doubt that certain injuries are perfectly competent to cause that disease. Neurasthenia and hysteria are also disorders that can be due to trauma, and are serious enough to be entitled to recognition by the surgeon as actual morbid entities. C. P. Gildersleeve (Brooklyn Medical Journal, March, 1904).

NEURASTHENIA.

Many cases of dementia præcox are in the early stages considered neurasthenics, but there are also abortive types of dementia præcox which pass through life, or many years of it, with the dementia arrested, and are classed simply as neurasthenic. They are seen in college men and young professional men who break

down suddenly after starting out brilliantly and are never heard of, becoming, perhaps, breadwinners and fathers of families, but never amounting to anything, and always working at a disadvantage. They have no initiative; they break down often, and have to rest and limit their work.

Finally, neurasthenia occurring under 20 is rarely neurasthenia. It is a dementia præcox, or a recurrent melancholia, or the exhaustion of a phrenasthenia, and it is rarely paranoia. Neurasthenia occurring at this early period with a bad family history, including family alcoholism, should make one very suspicious of a serious malady. C. D. Dana (Boston Medical and Surgical Journal, March 31, 1904).

OTITIS MEDIA IN CROUPOUS PNEUMONIA.

One condition may have little or no influence on the other, but more frequently the otitis is made worse by the pneumonic infection. When one has had an otorrhœa during childhood, although for a long time it may have remained apparently well, free from discharge or pain, a recurrence during the pneumonia is frequent. It has been experimentally shown that the pneumococcus injected in the blood is far more likely to attack any part previously damaged by injury or suppuration than one the resistance of which has not been lessened. Meltzer (Philadelphia Medical Journal, August 5, 1899) cites several cases where the pneumonia was preceded by a severe otalgia; all had had otitis media previously in the now aching ear. In all at the outset of the pneumonia, earache was the predominant symptom; this predominance, however, never lasted longer than one day. The pain disappeared on the second or third day or it lost its intensity and finally disappeared shortly before the crisis set in or with it. In none did the earache terminate in discharge. In one of Meltzer's cases the earache preceding the pneumonia was so striking as to so deeply impress the mother that when one year later the boy had an earache she sent for the doctor and said the boy again had pneumonia. Her guess proved correct.

There may be a simultaneous infection of the ear and lung. In a few cases the ear symptoms are manifested first. The ear manifestations may be so severe as to so completely overshadow the lung process that the pneumonia is not suspected until the otalgia is relieved by incising the membrana tympani or its spontaneous rupture.

The otitis may be secondary to the pneumonia, and this is their most frequent relationship. During the period of expectoration the pneumococcus brought up by coughing enters the nasopharynx, gains access to the Eustachian tube, extends by contiguity of tissue to the middle ear, and starts a suppurative otitis media. The occurrence of this complication during the height of the pneumonia, at the time when the patient's mind is dull and perhaps stupid or delirious, pain in the ear is not complained of, and the physician's attention is directed to the lung condition, he attributes the symptoms of cerebral irritation and septic infection to the severity of the pneumonia. Hence the ear inflammation is unrecognized until the drum ruptures, revealing the middle-ear suppuration, or it is discovered at the autopsy. In one of Wilson's (Birmingham Medical Review, July, 1901) cases the otitis was revealed at the autopsy, not being previously suspected. At the postmortem consolidation and small abscesses in the lung were found. The middle ear

was filled with foul-smelling pus. The pathological changes in the tympanum showed a suppurative process that had evidently existed much longer than the pneumonia. N. G. Ward (Medical News, April 16, 1904).

PANCREAS, PATHOLOGY AND SURGERY OF THE.

A. W. Mayo Robson has recently delivered a series of lectures on certain diseases of the pancreas which are full of charm and instruction. Failing the privilege of hearing them, every practitioner of medicine should heed what this most brilliant English investigator has to say on this little-known topic.

It is a matter of pride to Americans that he should introduce these Hunterian lectures (British Medical Journal; Lancet, March 19, 26, *et seq.*) by referring to the work of an American. He quotes fully and gives diagrams from Opie's monograph, which, as is well known, discussed the relations of the ducts of Wirsung and of Santorini, and the bearing which these varying anatomical structures have to the etiology of pancreatic disease.

It cannot be expected that the general practitioner should follow in detail such intricate considerations as those presented in this contribution of Robson's. The chief matter of interest and of importance centers in what he has to say concerning the symptomatology of the diseased pancreas. His profound researches have carried him to the point where he frankly states that the diagnosis of pancreatic disease is far from easy, yet he gives us a classification which can safely be used for a basis of treatment. Robson groups the symptoms and pathology, because, as he well says, they are in this organ peculiarly inseparable.

The variations from the normal he discusses, first, under digestive symptoms; second, under physical signs; third, under metabolic symptoms; and, fourth, under symptoms artificially produced. Under digestive symptoms he submits the following: *(a)* steatorrhœa, or fatty stools; *(b)* azotorrhœa, or faulty digestion of albuminous foods; *(c)* sialorrhœa; *(d)* diarrhœa; *(e)* dyspeptic disturbances; *(f)* emaciation; and *(g)* nausea and vomiting. Physical signs: *(a)* presence of swelling or tumor, *(b)* fever, *(c)* pain and tenderness with muscular resistance, *(d)* pressure on adjacent organs, *(e)* hæmorrhage, and *(f)* jaundice. Metabolic symptoms: *(a)* glycosuria; *(b)* other urinary changes. Special symptoms: *(a)* alimentary glycosuria; *(b)* Sahli's symptoms. Each one of these subdivisions is discussed with the author's usual clearness.

Of the whole group, perhaps the most interesting is centered upon the discussion of the urinary changes. The conclusions along these lines are as follows: Glycosuria is not common and cannot be relied on as a diagnostic symptom in disease of the pancreas, but, when it exists along with other signs, it is extremely serious, and, in fact, as a rule, indicates an incurable condition. In turn, indicanuria, maltosuria, pentosuria, and lipuria have been advanced as of diagnostic importance in pancreatic troubles. All these have been severally advanced and indorsed as useful signs of pancreatic disease, but it is significant that the small degree of importance which is attached to them is exemplified by Osler's discussion of the subject. He says: "The condition of the urine in diseases of the pancreas has no special peculiarities."

All investigators of pancreatic disease are eagerly hoping for a verification of Mayo Robson's prophesy, made before the

American Surgical Association in Baltimore, during 1901, that he would shortly be able to suggest the means of establishing positive diagnosis of certain pancreatic disorders through urinary test. At that meeting he stated his belief to be that he was then able, by the examination of certain crystals, to distinguish between acute and chronic inflammations and between simple and malignant diseases of the gland. Since that date, the test has been applied to every case that has come under the author's care in which the pancreas was suspected, and also in a large number of control cases. The technique of the method of preparing these crystals, as discussed by Cammidge, will be considered later.

A statement from so very high an authority as Robson that a test has been found which enables the surgeon with a reasonable degree of surety to differentiate between a curative, benign condition of the pancreas which calls, in the most imperative manner, for operative intervention, and a malignant growth of the gland, for the treatment of which operation can avail but little and is therefore virtually contra-indicated, is easily seen to be a matter of the profoundest importance. If, as is cited in his paper, cases have been presented to him which, with his generally admitted unequaled powers of diagnosis of pancreatic lesions, he has found himself unable positively to differentiate and has hence felt himself unable to treat except upon the findings of the urinary analysis, how welcome will this added diagnostic power be to those surgeons of lesser experience in this matter than Robson!

Second only in interest to the discussion of the urinary findings is the author's presentation of the causes of pancreatic hæmorrhage. In all he dwells upon eight causes which in his opinion are either predisposing or exciting in their influence. Vascular disease of all kinds, headed by alcoholic or syphilitic degenerations, is naturally considered the paramount factor. Trauma may be a cause. The tissues of the pancreas are soft, and, although the gland is well protected, it may be bruised by a violence which seems but slight. Fatty degeneration of the gland-cells and fatty deposits in the pancreas, due to whatever cause, may lead to want of suitable support to the blood-vessels, which are thus rendered unable to withstand the normal blood-pressure. This, in the author's opinion, accounts for the hæmorrhagic pancreatitis so often seen in fat and flabby individuals. Fat-necrosis in the gland or its vicinity has been suggested by Balser, who has found ground in support of his views. Disintegration of neoplasms, such as cancer or sarcoma, may be the cause of extensive hæmorrhage. Embolism of a pancreatic artery has been reported by Mollière as the cause of the bleeding. It is well known that many general causes which lead to hæmorrhage elsewhere may give rise to the lesion in the pancreas. Heart and lung disease, hepatic cirrhosis, hæmorrhagic diathesis, the exanthemata, and various forms of poisoning may all cause pancreatic hæmorrhage. Pancreatitis itself may undoubtedly lead to a hæmorrhage, but it would seem probable, as a rule, that the effusion of blood into the organ takes place rather as a result of some of the before mentioned causes and produces the pancreatitis rather than *vice versa*. Large pancreatic hæmorrhages are probably more common than is usually supposed.

From this discussion of the purely clinical side of pancreatic disease one can turn profitably to a presentation of the technique of the laboratory findings as

given by P. J. Cammidge, whose paper follows Mr. Robson's. In 1900 he started upon the theory that there was some connection between fat-necrosis and the hæmorrhagic tendency so typically observed. He therefore examined the blood of several cases for glycerin and glycerin derivatives. He found, however, that while this might theoretically be possible, its proof was practically impossible, because of the small amount of blood obtainable. He and Robson then turned their attention to the urine, and, recognizing the selective power of the kidneys by which they detect and excrete abnormal constituents of the blood, endeavored to show that the soluble products of fat-necrosis or their derivatives, might be present in sufficient bulk to make them easily demonstrable.

Since these findings probably represent the most important advance which has been made in laboratory diagnosis recently, the more or less extensive technique should be widely known. It is as follows: The specimen of urine is filtered and 10 cubic centimeters are poured into a small flask, 1 cubic centimeter of HCl is added, and the mixture boiled for ten minutes. A mixture of 5 cubic centimeters of urine and 5 cubic centimeters of water is then poured into the flask, which is cooled. Lead carbonate is now slowly added, to the extent of 4 grammes, and after the completion of the reaction the urine is filtered. To the clear filtrate are now added 2 grammes of sodium acetate and 0.75 gramme of phenylhydrazin hydrochlorate, and the mixture is boiled for four minutes. It is then poured into a test-tube and allowed to cool. In from one to twenty-four hours a yellow deposit forms which, with a one-sixth objective, is seen to consist of sheaves and rosettes of gold and yellow crystals. Obviously, all sugar must be removed from the specimen before this method is utilized. The crystals met with in nonpancreatic cases turn brown and dissolve in dilute sulphuric acid in a somewhat different manner than in other conditions. The difference in the shape of the crystals and the increased time taken to dissolve them in sulphuric acid is the basis upon which the differential diagnosis is made.

The correct diagnosis of malignant disease requires care, but it can be made, Cammidge says, with a very considerable positiveness. The crystals are slow to dissolve, are large and broad, but it must not be forgotten that occasionally there is associated with the malignant disease a certain amount of inflammation which interferes slightly with the positiveness of the test. Editorial (Medical News, April 9, 1904).

POISONS, STUDY OF THE ANTAGONISTIC ACTION OF.

A contribution to this subject has been made by the author in studying the simultaneous action of pilocarpine and atropine in the developing embryos of the sea-urchin and starfish. A. P. Matthews had found that the development of the latter is hastened by pilocarpine and retarded by atropine. The advantage of studying the effect of the simultaneous action of the two drugs in these simple organisms, in which the effect is a plain one and can be easily observed, is apparent. The author found that, while small doses of pilocarpine hasten the developments of the embryos, larger doses or a prolongation of the action produce the opposite result. Small doses of atropine have no effect, but larger doses hinder development. When both drugs are used there may be antagonism

or synergism, according to the condition, but the depressant action always tends to predominate. The observed resultant is always below the mathematical average. Even with the best antagonism, both poisons are producing their action, as shown, for instance, by the greater liability of the protoplasm to depression. Stimulation can be readily and completely removed by very small doses of a depressant (even by doses which are inactive when used alone). Depression is lessened by only a limited range of doses of the stimulant. Its removal is in no case complete. This gives to stimulation a limited, but distinct, usefulness. The optimum dose of the stimulant is smaller when the embryos are depressed than when they are normal. Larger doses are synergistic to the depressant, and hence harmful. The dose of the stimulant must therefore be chosen smaller, when depression exists, than in normal specimens. T. Sollman (American Journal of Physiology, February 1, 1904).

RADIUM-RAYS, THE ACTION OF.

A series of chemico-physiological experiments were performed by the author on hen's eggs, with the view of elucidating some of the important problems that have arisen in the therapeutic application of the Becquerel rays. In 1900 Walkhoff observed certain peculiar changes in the skin caused by radioactive substances, which are analogous to the dermatitis produced by the Roentgen rays. Becquerel noticed in his own case that carrying a highly active radium preparation in his vest-pocket produced a deep and persistent inflammation in the skin beneath, which spread and terminated in a deep-seated abscess. The repetition of this observation by others has led to the term "radiogenic inflammation." The therapeutic application of this radio-active substance rivals that of the Roentgen rays in tuberculous and carcinomatous disease of the skin. No explanation of the effect of the former on normal and pathological tissues has been forthcoming, except that it consists of a primary cellular degeneration with secondary reactive inflammation. This peculiar necrobiotic change in the cells following an exposure to the rays sometimes of not more than five minutes, not immediately, but only after a latent period of several days, has awakened investigation. Gresel observed that paper in which radium has been kept becomes brown and brittle, and ascribed these changes to molecular attraction which he assumes by analogy to take place also in living tissues. These and other researches stimulated the author to study the physiologico-chemical effects of radium-rays, and for this purpose he availed himself of that veritable storehouse of chemical and physiological facts, the hen's egg. Exposure of the latter to the influence of radium-rays for from forty-four to one hundred and forty-four hours produced, in the sense of a dry distillation, a decomposition of the albuminoids. No marked changes are produced in native albumin. The organic pigment, lutein, a lipochrome contained in the yelk, is decolored. There is an important electrical action in the lecithin, which is decomposed. This substance, allied to the fats, contains nitrogen in the group cholin, which is bound to the phosphoric acid constituent, and by virtue of its nitrogenous content is revealed its derivation from albumin. Its decomposition takes place with the addition of water and results in the formation of stearic acid, glycerophosphoric acid, and cholin, which last splits off trimethylamin. According to Verworn, lecithin is a splitting product of albumin,

like the nucleins, with which it is associated. It is a necessary constituent of all living cells, being united in some unknown way with the albumin of the protoplasm. According to Hoppe-Seyler, the presence of lecithin in large quantity in developing cells or in those capable of development, associated with cholesterin in the yelk of the egg, spermatozoa, colorless blood-corpuscles, rapidly growing pathological growths, and in many seeds and rapidly growing parts of plants indicates that lecithin bears a certain relationship to the metabolic events of cellular development. The influence of radium in decomposing lecithin would seem to explain the peculiar effects wrought by this substance in the cutaneous and adjacent tissues. The continual exfoliation and regeneration of the epidermis requires the presence of a considerable quantity of lecithin in accordance with the rule that this substance is found in largest amounts in those tissues undergoing active development. The necrotic and inflammatory changes in the skin produced by radium can therefore be explained upon the basis of the loss of lecithin through decomposition. The action of the Roentgen rays in retarding or arresting the growth of carcinoma and lupus of the skin would therefore be accounted for by this fact—namely, that the lecithin, which is abundant in all neoplasms and evidently plays an important rôle in their growth and development, is destroyed by prolonged exposure to the influence of these radiations. G. Schwarz (Medical News; from Pflüger's Archiv, December 17, 1903).

SALIVA: ITS PHYSIOLOGY, CHEMISTRY, AND PATHOLOGY.

Concerning the pathology of this secretion, the author holds that there is a field for investigation that has as yet been poorly explored. It is probable that there is an altered state of the saliva in latent disease in which no other indication of the disease may be found. It is known that deficiency of salivary secretion is often associated with depleted or depraved function of the stomach, and in wasting fevers, likewise, the increased salivation is caused by hyperacidity of the gastric juices. *Fatty* saliva is often associated with a fat-necrosis due to some obstruction to the circulation. *Sweet* saliva is an accompaniment of diabetes mellitus. *Albuminous* saliva is exceedingly uncommon. *Bilious* saliva is found in severe cases of jaundice due to cholecystitis, cholelithiasis, or carcinoma of the head of the pancreas. Oftentimes the saliva is not colored, but on chemical examination is found to contain bile salts and bile acids. *Bloody* saliva is of no consequence, as it is usually due to hæmorrhage in the naso-pharynx or from an ulcer of the stomach, where the other symptoms are of much more importance. The only point is to differentiate it from an hæmoptysis. *Uric acid* may be found in the saliva or a uric acid diathesis may alter the saliva. H. M. Hays (Medical News, March 26, 1904).

SEPTIC WOUNDS, TREATMENT OF.

The conclusions which the writer has drawn from purely clinical observations on a considerable number of septic wounds are as follows: Dry, sterile, gauze dressings are far preferable for the dressing of septic wounds, because they, by their greater power of absorption, most efficiently drain the wound, and by their slight mechanical irritation and comparative dryness make the granulations more active and allow full advantage to be taken of Nature's reparative power, while moist dressings and antiseptic

baths and irrigating fluids have a depressing effect on the granulations; moist dressings are, however, indicated when one cannot obtain sterile dressings or cannot depend on the aseptic skill of the persons who are to apply the dressings. "Antiseptic poultices" are not to be preferred to sterile dressings, and there is at times a danger in their use; in case irrigating fluids are necessary, when from some unusual reason it is impossible to make a wound of such shape that it can be properly dressed, sterile salt solution should be the irrigating fluid used. Peroxide of hydrogen should be avoided, since in partially closed cavities or loose tissues its gas production may make it a spreader of infection; the use of dry sterile gauze meets the indications in the routine treatment of the great majority of septic wounds better than any other material. A. L. Chute (Boston Medical and Surgical Journal, April 21, 1904).

TETANUS TOXINS, GALVANIC CURRENT AND.

Roemer (Berliner klinische Wochenschrift, February 29, 1904) has carried out a series of experiments with the galvanic current upon tetanus toxins, antitoxins, and a mixture of the two. The galvanic current influences solutions of tetanus toxins in a most decided manner. Weak currents increase the minimal fatal dose per gramme, in the neighborhood of the anode and cathode, having the same effect upon the general fluid; so that it seems possible to convert a less active toxin, by the help of galvanism, into one of a desired strength. Stronger currents (under 2 ampères) diminish the minimal fatal dose per gramme at the anode and in the fluid generally, while the strength remains stationary or is increased at the cathode. These experiments apply only to the mouse; as far as the guinea-pig is concerned, no change was noticed. Another observation was that by the passage of a relatively weak current for a short time through tetanus antitoxin serum, a general diminution of the antitoxic power of the whole fluid was found. (New York Medical Journal and Philadelphia Medical Journal, April 2, 1904.)

THYMIC TRACHEOSTENOSIS.

In all cases of laryngeal stridor it should be determined whether or not the thymus is enlarged. On account of surgical shock being badly borne by infants, and especially those in this condition, if the symptoms are *not* urgent, postural treatment should be tried, and if, in any position of the head and neck, relief is afforded, that position should be maintained by suitable apparatus until Nature has effected a cure by enlargement of the thorax, strengthening the tracheal rings, and diminution in the size of the gland. Intubation, tracheotomy, and artificial respiration do no good. The surgical procedure of opening the mediastinum, bringing forward the gland and stitching it to the tissue over the sternum, should be performed immediately if there is danger from asphyxia. W. W. Carter (Medical Record, April 2, 1904).

TONSILS, TUBERCULOSIS OF, IN CHILDREN.

At one time in the history of medicine it was thought that tuberculosis of the tonsils in children was a rare affection. It is now recognized to be comparatively frequent.

The researches of many pathologists, working both by postmortem and by experimental methods, have demonstrated its frequency, but, by reason of the ex-

treme difficulties connected with its detection, the disease often remains undiagnosed.

The usual method of infection of the tonsil is by means of tuberculous sputum, in which case naturally the tonsil is but a secondary involvement, the parent *nidus* being in the patient's own throat. The primary infection, however, in children probably results either from the lodgment of tuberculous food in the tonsillar crypts, or by means of the breathing in of the tubercle bacilli. The chances seem to be with the former, for experimental tuberculosis of the tonsils has been communicated by means of infected food, but never by means of breathing experiments. In very young children, in whom mouth-breathing is by no means uncommon, such a means of infection is not unthinkable.

In a recent clinical study by Kingsford (Lancet, January 9, 1904) a number of interesting cases of tuberculosis of the tonsils are reported, some primary, others secondary to tuberculosis elsewhere.

In seventeen cases tuberculous lesions were found. In three only, however, were the naked-eye appearances of any value in making a diagnosis. One showed an ulceration, another a scar, and the third a carious spot.

The parts of the tonsils most liable to be involved were the lymphoid follicles, situated not far from the epithelial surfaces. In no instance was the author able to trace bacilli into the depths of the crypts or surface of the tonsils. The author further notes that few cases of tuberculosis of the tonsil have seemed to occur in hypertrophied tonsils which have been removed by operation.

As to the tonsillar route of entry of the tubercle bacillus into the body the author says that it seems hardly likely that the bacillus would frequently pass through the tonsil and yet leave behind no trace. In view of the small number of primary tonsillar tuberculoses he does not believe that we are justified in going further than to say that the tonsil is a recognized channel of infection, but the evidence seems strong against Aufrecht's contention that the tonsils are the most important avenues of entrance for the tubercle infection. Editorial (Pædiatrics, February, 1904).

TROPICAL CUTANEOUS MYIASIS IN MAN.

Cutaneous myiasis in Darien is usually due to the *Dermatobia noxialis*. Man and dog are host by preference. The *Dermatobia noxialis*, though not confining its attacks to man alone, cannot be called an occasional parasite of man, as it attacks all who are properly exposed. White-skinned races are more susceptible to the disease than the darker races. The period of incubation is from sixteen to twenty-three days from exposure to the development of the first symptoms. Larvæ differ in shape according to anatomical location. Grub or larvæ, if let alone, will not produce injurious results. Abscess and ulceration are the results of attempted expulsion without proper preliminary treatment. J. L. Adams, Jr. (Journal of the American Medical Association, April 9, 1904).

TUBERCULOSIS, MARAGLIANO'S VACCINATION FOR.

The name of Jenner has become synonymous with savior. In those days, when medical text-books described smallpox as an inherent humor which must out in every man, and where it was the prevailing opinion that, as no one could escape it, it was better to have it and be done with it, in those days we can see that it must have been hard indeed to

have established the use of such an unprecedented custom as vaccination.

Until the last few years of the nineteenth century the popular view of tuberculosis has been almost as fatalistic. But from Koch to Maragliano there has been an uninterrupted procession of investigators who have marched forward with careful haste; and have carried the flag of conquest almost into the citadel of death.

If tuberculosis can be as completely controlled as small-pox has been, the greatest curse of disease will be lifted from the land. In the original contribution prepared by Maragliano, of Genoa, and read at the Henry Phipps Institute, we see that it is possible to produce a specific serum-therapy for tuberculosis, and that there is good reason to hope for vaccination in man as a preventive of the spread of the disease.

It all depends upon the enterprise with which Professor Maragliano's methods are tested upon a large scale whether it is half-century or but a few short years before the value of his and his colleague's work is felt all over the civilized world.

The energy and wisdom shown in the adoption of antitoxin of diphtheria has illustrated what can be done, when laboratories, health departments, and great business institutions work together on an approved scientific basis. The bacilli of diphtheria work with such lightning rapidity that the rescue from the disease is almost spectacular; and the public has needed but little coercion to adopt the treatment. Also the onslaught of the disease is so decisive that there is no time to waver and doubt. But the slow, insidious progress of tuberculosis and the tendency to delay diagnosis until the serum-therapy will prove of no avail will combine to make the public doubt the efficacy as well as the necessity of such treatment as well as of vaccination.

Dr. Maragliano begs for a wide test, which implies years of work, but such work is just the kind that the generous founder of the Henry Phipps Institute had in mind. Means, equipment, workers, leisure, and a great desire to bring things to pass are all necessary if one would establish the machinery that will make a scientific theory lift a part of the world's burden. These the Institute possesses as no other in the world. And it would seem as though it were best fitted to carry out the change.

We feel that if the workers of the Henry Phipps Institute satisfy themselves that these methods are practical for application on a large scale, it will not be too much to expect that they will indicate the lines by which the serum shall be manufactured and distributed, and also undertake the propaganda of the treatment with the systematic cooperation of health departments. Editorial (Medical News, April 2, 1904).

TUNICA VAGINALIS, FIBROMATA OF.

Like other serous cavities, the cavity of the tunica vaginalis may be the seat of fibrous growths. Irritation is an important factor in their production. They spring originally from the subserous connective tissue, but may become detached and lie loose in the cavity. They are chiefly of the variety known as soft fibroma, and are prone to myxomatous and fatty degenerations. The testicle may be affected by the same form of degeneration. The growths are generally minute. The only effectual remedy is excision. As the testicle is liable to be affected, the propriety of removing it with the growths should be considered. E. A. Balloch (Annals of Surgery, March, 1904).

TYPHOID FEVER, SERUM-TREATMENT OF.

Du Mesnil du Rochemont (Therapeutische Monatshefte, January, 1904) deals with the serum-treatment of typhoid fever. The value of this treatment is still doubtful. Chantemesse, after a relatively large experience, states that a visible improvement in temperature, pulse, and general condition can be seen when the serum is used or the disease runs a milder and shorter course. In 50? of his cases he had a mortality of only 6 per cent. as opposed to a mortality of 12 per cent. obtained in the Paris hospitals by other methods; the danger of perforation was decidedly diminished. Among 50 children treated by Josias with Chantemesse's serum the mortality was 4 per cent. only, but the length of the illness was not necessarily shortened nor the possibility of relapse excluded. Mendez treated 65 patients with only 1 death. He found that the best results were obtained if the injections were begun early. The effect of treatment was not constant, and some days were needed for its development. Local reaction appeared, as a rule, on the second day; the temperature began to fall after forty-eight hours, falling gradually if treatment had begun early, but suddenly if during the second or third week of the illness; diazo reaction and albuminuria ceased to be present on the second or third day in the moderately severe cases; and by the fifth or seventh day the general condition had become normal, although the rash might still be visible and the spleen enlarged. Du Rochemont treated 6 cases with serum from the Swiss Institute, and obtained moderate results. The rise of temperature was checked and the general conditions improved, but there was no evidence that the attack was cut short. Jez obtained an extract of the thymus, spleen, brain, and bone-marrow of a guinea-pig, which had been strongly immunized, and this gave unexpectedly good results. Eichhorst used Jez's preparation successfully in 12 severe cases of typhoid. In 1 case a normal temperature was reached on the seventh day, in the others on the fourth or fifth day after the treatment began; the general condition improved, and delirium, if present, rapidly disappeared. Pometta, on the other hand, employed the same method in 10 cases without being able to trace any appreciable result. One patient died; the temperature of another seemed to be, on the whole, lower and his delirium less after the treatment was begun, but fever still continued for five weeks. The author tested the extract on 6 patients with good results. In the mild cases a speedy fall of temperature ensued, and those cases which threatened to be severe ran a milder course; no unpleasant symptoms followed large doses, the patients feeling better for the treatment. The rash and the swelling of the spleen might persist after the fall of temperature. Convalescence seemed to be unusually prolonged in some cases and needed especial care. (British Medical Journal, April 16, 1904.)

TYPHOID PERFORATION, TREATMENT OF.

Perforations are to be expected in about 2.5 per cent. of all cases of typhoid fever. Prompt surgical intervention is the best and only logical treatment. Early diagnosis is most desirable, and will be the means of greatly reducing the mortality, as 55 to 60 per cent. would recover. Diagnosis, sufficiently early to achieve these results, can only be made by careful watching, treating all cases

as serious ones and making a proper interpretation early. The suggestions of Cushing are of value. At the first indication of this stage a surgeon should be consulted and preparations made to operate. The sphygmomanometer should come into general use as an important aid to diagnosis. More cases die from delay than from errors in surgical technique. Therefore, in doubtful cases, though a mistake may be made and no perforation found, operation should take place. No case, unless dying, is so desperate as to be beyond some hope of saving. No time should be lost in operating and the cavity should be drained. The abdomen should be gotten into quickly, and out of more quickly. Louis Frank (Journal of the American Medical Association, April 2, 1904).

WOOD ALCOHOL.

Wood alcohol, which recently has come to be used extensively in the arts and in the manufacture of culinary and medicinal extracts, is a most dangerous substance when taken internally in sufficient quantity. When pure, it has a rather agreeable ethereal odor and a sharp, burning taste, and when ignited burns with a bluish flame, giving an intense heat. It goes under a variety of names, such as wood spirit, methyl alcohol, burning alcohol, Columbian spirit, naphtha, and wood naphtha. It is used in the manufacture of ether, chloroform, formaldehyde, and methyl chloride, and also in the preparation of shellac varnish, since it is a good solvent of resinous substances. As there is no revenue tax on wood alcohol, it can be bought for about 50 cents a gallon, whereas grain alcohol is worth $2.60 a gallon, the tax being $2.17 a gallon. This difference in price is a great temptation for the unscrupulous manufacturer of flavoring and medicinal extracts, and it is frequently found that these contain a large percentage of wood alcohol. Thus it has been shown conclusively by Harlan (Ophthalmic Record, x, 81, 1901) and by Main (Journal of Medicine and Science, 26, 1903) that essence of Jamaica ginger, peppermint, and lemon may contain as high as 75 per cent. of wood alcohol. The cheaper grades of alcohol also frequently contain wood alcohol.

Wood alcohol is, however, a powerful poison, and there is hardly a month in which one does not read or hear of a case of blindness or death resulting from its use or from the use of essence of lemon or Jamaica ginger which had been prepared with it. In the last eight years over 50 deaths due to drinking varying quantities of wood alcohol are mentioned in the literature, but this includes only a small percentage of the deaths which have been caused by that substance. Prior to 1896 only 1 case was reported. This is probably due to the fact that wood alcohol was not used so extensively then as it is now. Ten of these deaths resulted from drinking essence of lemon, 11 from essence of Jamaica ginger, and the remainder from drinking the pure alcohol, mixed with water. In most of these cases the victims had been out on a "spree," or had bought a quantity of cheap alcohol for a celebration at home, and some of them drank as much as a pint of the alcohol, while others drank from ten to twelve bottles of essence of lemon or ginger. Death is said to have resulted, however, from less than 2 ounces. It is important to note, in this connection, that the action of methyl alcohol differs widely in different individuals. Perhaps the majority of those who drink it escape without permanent danger, while others may die or become totally blind, even if

they have taken smaller doses. The exact mode of the production of death is not known, but the researches of Pohl and of Hunt have shown that methyl alcohol is excreted from the body very slowly. The important discovery has also been made that it is only partially oxidized in the body, and that its administration leads to the formation of a highly toxic acid (formic acid) and probably also formaldehyde. This is an interesting illustration of the fact that the body may convert one poison into another, which is far more powerful than the one that was ingested. Bongers has made the observation that when methyl alcohol is injected into the rectum of an animal some of it and also formic acid are excreted into the stomach. These substances are presumably reabsorbed, either from the stomach or from the intestine, and some of them again excreted into the stomach, thus forming a "circulation" of methyl alcohol. The result of this "circulation" is that the irritant action of methyl alcohol on the digestive tract is exerted several times. As we shall see below, one of the most marked symptoms of methyl alcohol poisoning is gastro-intestinal irritation, and this is probably due in part to the peculiarity of its excretion.

Another very important sequence of drinking wood alcohol is a sudden development of amblyopia, which frequently ends in total blindness. During the last eight years 36 cases of amblyopia following the use of wood alcohol in some form have been reported. Twenty-two of these cases followed a debauch during which wood alcohol was drunk; 14 were caused by drinking essence of Jamaica ginger or lemon, and 8 resulted from the inhalation of wood alcohol fumes while shellacking in a large vat or closed room for several days. The last-mentioned cases are interesting, because they show how dangerous this drug is when taken for a period of days, even in very small quantities. This is no doubt due to a cumulative action, because the drug is excreted from the system so very slowly. The experiments of Hunt, de Schweinitz, and Birch-Hirschfeld show that methyl alcohol may be given to an animal in a single large dose and have a less toxic effect than the same dose of ethyl alcohol. If, however, small doses are given daily to two different animals the one that is receiving the methyl alcohol dies within a week, and may become blind several days before death. The retinæ show marked degenerative changes. The one that is receiving ethyl alcohol, on the other hand, shows no bad effects, and may even gain in weight. If it is killed and its retinæ examined, no pathological changes are found.

There is some difference of opinion regarding the pathology of methyl alcohol amblyopia. The experiments of Holden, Birch-Hirschfeld, and Friedenwald have shown that there is a degeneration of the ganglion-cells and macular layers of the retinæ caused by nutritional disturbances, due to the vasoconstrictor effect of the methyl alcohol on the retinal vessels. This degeneration is inevitably followed by a degeneration of the nerve-fibers of the optic nerve. Other observers are of the opinion that there is primarily an interstitial optic neuritis, but it seems likely that the first view, which is the more recent, is correct. It is probable, however, that a degeneration of the retinal ganglion-cells and an interstitial neuritis occur simultaneously.

The symptomatology of methyl alcohol poisoning presents a very definite picture, and hence it is not difficult to make a positive diagnosis. There may be first great muscular weakness with

defective heart-action, followed by intense gastro-intestinal disturbances, with severe nausea and vomiting, intense headache, giddiness, coma, and delirium. Some cases die within twenty-four hours, but others recover only to find that they are nearly or totally blind. Some do not lose their sight for several days after they have recovered from their intoxication. These cases of blindness may improve under treatment, but nearly always relapse and remain in that condition. On examination there is found a contracted visual field with absolute central scotomata. The pupils are widely dilated and irresponsive to light. Ophthalmoscopically there is noted a blurring of the edges of the optic discs, positive optic neuritis, and later complete optic atrophy.

The treatment of methyl alcohol amblyopia is unsatisfactory. Some cases have improved under free catharsis from jalap or calomel and salines, combined with diaphoresis from hypodermics of pilocarpine. This treatment, however, must be given during the first few days of the acute inflammatory stage if any beneficial results are to be expected. When atrophy begins to show itself strychnine is given hypodermically in increasing doses until the point of tolerance is reached. Potassium iodide has also been used, but it must be remembered that the prognosis is very bad when signs of atrophy begin to appear. In most cases the affection goes on until complete blindness results, regardless of what treatment is given. Editorial (Journal of the American Medical Association, April 16, 1904).

YELLOW FEVER. REPORT OF THE FRENCH COMMISSION ON.

This commission was sent to Brazil by the French government in 1901 and remained there for two years, studying yellow fever with every facility afforded by the Brazilian authorities. Among the conclusions announced as the results of this research is one to the effect that the serum of a yellow fever subject is virulent for three days, but by the fourth day there is no longer any virus to be found in it, even when the fever still persists high. Also that the virus applied to an abrasion of the skin made by scraping off the epidermis is unable to induce the disease, but a subcutaneous injection of 0.5 cubic centimeter imparts it. The virus in the blood-serum of a yellow-fever patient traverses the F bougie of a Chamberland filter without dilution, but not the B bougie. Virulent serum exposed to the air at a temperature of from 24° to 30° C. becomes inactive by the end of forty-eight hours. In defibrinated blood kept under oil of vaselin at this temperature the microbe of yellow fever is still alive after five days, but does not survive to the eighth day. Virulent serum becomes harmless when heated. Preventive infection of this heated serum confers relative immunity, which may be rendered permanent by supplementing it with inoculation of a small amount of virus. Injection of defibrinated blood kept in the laboratory under oil of vaselin for at least eight days confers relative immunity. The serum of convalescents is endowed with unmistakable preventive properties, and seems to possess also therapeutic properties. The immunity conferred by serum from convalescents is still active by the twenty-sixth day. The *Stegomyia fasciata*, after sucking the blood of a yellow-fever patient during the first three days of the disease, is not able to transmit the disease until after an interval of twelve days at least. The resulting infection seems to be graver the longer the

interval that elapses. The mosquito bite does not always cause the disease, and does not confer immunity. Aside from the bite of this variety of mosquito the disease can be transmitted only by subcutaneous injection of blood taken from a yellow-fever subject during the first three days of the disease. There can be no epidemic in the absence of the *Stegomyia*. The period of incubation may last for thirteen days. The causal agent of yellow fever still eludes research. Marchaux, Salimbeni, and Simond (Journal of the American Medical Association; from Annales de l'Institut Pasteur, vol. xvii, No. 11).

AMERICAN MEDICAL EDITORS' ASSOCIATION.

THE annual meeting of this association will be held in the parlors of the Hotel Dennis, Atlantic City, N. J., at 2 P.M., June 6th. A most interesting program has been prepared and many instructive papers upon medical journalism and allied subjects will be presented. All editors are most cordially invited to attend.

Books and Monographs Received.

The editor begs to acknowledge, with thanks, the receipt of the following books and monographs:—

Twenty-eighth Annual Report of the Managers and Officers of the New Jersey State Hospital at Morris Plains for the Year ending October 31, 1903.——Krankheiten und Ehe. Darstellung der Beziehungen zwischen Gesundheits-Störungen und Ehegemeinschaft. II. Teil. New York: Rebman Company. 1904.——The Value of a Knowledge of Anatomy from a Practical Standpoint. By G. G. Davis, Philadelphia. 1903.——Applied Anatomy; its Value and Place in the Medical Curriculum. By G. G. Davis, Philadelphia. 1900.——An Improvement in Iron Medication. By Archibald Church, Chicago, Ill. 1904.——The Great Value of Drainage and Ice in the Early Stages of Mastoiditis. By Sargent F. Snow, Syracuse, N. Y. 1904.——Nervous Exhaustion. By Amos J. Givens, Stamford, Conn.——Boards of Health. By G. W. Wagoner, Johnstown, Pa. 1904.——A Study of Normal and Pathological Conditions of the Bursæ of the Neck, with Special Reference to the Subhyoid Bursa. By Willis S. Anderson, Detroit, Mich. 1904.——Intratracheal Injections: Experimental and Clinical Study of their Value in Diseases of the Lungs. By Willis S. Anderson, Detroit, Mich. 1904.——A Cabin for Open-Air Treatment. By R. A. Cleemann, Philadelphia. 1903.——Notes on Physiologic Chemistry. By Edward C. Hill, Denver, Colo. 1904. ——Problems in the Study of the Etiology and Pathology of Pulmonary Tuberculosis upon which is Based the Early Diagnosis of the Disease. By H. B. Weaver, Asheville, N. C. ——Some Observations on the Movability of the Apex of the Heart. By W. J. Pettus, Washington, D. C. 1904.——Dionin—A New Agent in Ophthalmic Therapeutics. By Wendell Reber, Philadelphia. 1904.——Proceedings of the Sixteenth Annual Meeting of the Association of Economic Entomologists. United States Department of Agriculture, Washington, D. C. 1904.——Sulle vegetazioni adenoidi in generale e più particolarmente sui loro rapporti colle otopatie. Per il Dott. Vittorio Grazzi, Florence, Italy. 1904.——El Uncinaria Duodenalis en Tampico. By A. Matienzo, Tampico, Mexico.——The Date-palm and its Utilization in the Southwestern States. By Walter T. Swingle. United States Department of Agriculture, Washington, D. C. 1904.——Pasture, Meadow, and Forage Crops in Nebraska. By T. L. Lyon and A. S. Hitchcock. United States Department of Agriculture, Washington, D. C. 1904.——Foreign Import Tariffs on Grain and Grain Products, 1903. By Frank H. Hitchcock. United States Department of Agriculture, Washington, D. C. 1903.——Forest Fires in the Adirondacks in 1903. By H. M. Suter, United States Department of Agriculture, Washington, D. C.——Foreign Import Tariffs on Meat and Meat Products, 1903. By Frank H. Hitchcock. United States Department of Agriculture, Washington, D. C. 1903.——Annual Flowering Plants. By L. C. Corbett, United States Department of Agriculture, Washington, D. C. 1904.——The Economic Value of Our Native Birds. Pennsylvania Department of Agriculture, Harrisburg, Pa. February 15. 1904.——Methods of Benefits of Growing Sugarbeets. United States Department of Agriculture, Washington, D. C.

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[End of the Editorial Department of the Monthly Cyclopædia for May, 1904.]

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THE RELATION OF THE INTERNAL SECRETIONS TO EPILEPSY, PUERPERAL ECLAMPSIA, HYDROPHOBIA, AND TETANUS.*

In a paper on the above subject Dr. Sajous first referred to a suggestive coincidence bearing directly upon the disorders studied, epilepsy, puerperal septicæmia, tetanus, and hydrophobia, viz.: that several investigators had been led to conclude by experiments, in which each organ was studied individually, that the

* Abstract of paper prepared for the Section on Materia Medica, Pharmacy, and Therapeutics of the Fifty-fifth Annual Session of the American Medical Association, and which will appear *in extenso* in the Journal of the Association.

adrenals, the pituitary body, and thyroid not only influenced metabolism, but also that these organs were concerned with the destruction of toxic waste products.

The marked blood-pressure-raising power of adrenal extractives and their action on the heart are well known. That the secretion of the adrenals produces identical effects has been established experimentally by Cybulski and Szymonowicz,[1] Langlois,[2] Biedl,[3] Dreyer,[4] and others. The greater splanchnic was found by Dreyer and Biedl to contain fibers which, on excitation, increased the functional activity of the adrenals. The last-named physiologist had also demonstrated that the adrenals are not supplied with vasomotor nerves, and that no secretory effects are obtained by stimulating the spinal cord up to the third thoracic.

This entailed the necessity of showing that splanchnic fibers ran up the sympathetic cord. Quain[5] states that some fibers of the splanchnic's higher roots "may be traced upward in the sympathetic cord as far as the first or second thoracic ganglia." Gray[6] gives the same limits. Cruveilhier[7] says that these upper filaments "are merely in contact with the sympathetic"—a statement which obviously suggests that they constitute an autonomous path.

Stimulation of the sympathetic cord alone above the origin of the splanchnic nerve, *i.e.*, up to the first thoracic ganglion, provokes vasoconstrictor effects in various organs, according to François-Franck and Hallion,[8] Cyon and Aladoff,[9] and others. Unable to account for their results, they ascribed them to "reflex action" or to some unexplained "indirect influence." These physiologists had also found that stimulation of the cervical cord produced the same—unexplained—vasomotor effects. Dr. Sajous showed that the latter were due to stimulation of the adrenals—directly when the sympathetic chain in the thorax was stimulated, indirectly when the current was applied to the cervical sympathetic.

The author then traced the connection between the pituitary body and the third ventricle and especially the central gray matter, and showed that the labors of Cajal,[10] Van Gehuchten,[11] Edinger,[12] and others had demonstrated not only the presence of such a connection, but also that the central gray substance was functionally connected with all parts of the organism. On the other hand, the very recent histological studies of Gentès[13] had shown that the partition between the two lobes of the pituitary body contained an organ which typified precisely that of the olfactory membrane in the nose—thus sustaining what Dr. Sajous[14] had previously contended: *i.e.*, that the pituitary body should be regarded as a sensory organ capable of detecting various toxic agents in the blood-stream, and of enhancing, when such were present, the functional activity of the body's protective resources, and, therefore, the quantity of antitoxic substances in the blood.

The bearing of these functions upon the convulsive disorders mentioned was then reviewed.

Munk[15] had provoked diaphragmatic tetanus on stimulating the respiratory area adjoining the olfactory organs, and Cyon had caused tetanic spasm on stimulating the pituitary body. Prus[16] had found that spasmogenic impulses were not always transmitted by the pyramidal tracts, but by others which he termed "extrapyramidal" and which passed below, *i.e.*, by way of the midbrain or tegmentum, through which the motor impulses from the central gray substance pass. Hering had since confirmed these results, and produced epileptic seizures after divid-

ing both upper motor tracts. Recently Nino Samaja[17] had shown that, while in the higher adult mammals the motor cortical zone could alone evoke clonic convulsions, the lower brain was the source of stimuli which caused tonic spasm; and furthermore, that, while in man clonic convulsions were also of cortical origin, the seat of tonic convulsions was exclusively basilar. Magnan[18] had caused epileptic seizures in guinea-pigs, pups, and kittens deprived of their hemispheres, etc.

Dr. Sajous then advanced the view that there were *two* sources of convulsions: the first, some toxic in the plasma circulating *in* the nervous elements; the second, excessive activity in the pituitary body, leading to a correspondingly marked oxidation in all organs, including the muscles. The first was certainly a *pathogenic* factor; while the second was an exaggerated manifestation of normal functional activity, and *protective.*

After removal of the pituitary body the symptoms were, in Schäfer's words, "(1) Diminution of the body temperature; (2) anorexia and lassitude; (3) muscular twitchings and tremors developing later into *spasms;* (4) dyspnœa." After removal of the thyroid in the monkey "the most characteristic symptoms were muscular tremors passing gradually into clonic spasms and finally into *convulsive attacks* (tetany)"; there was also, according to the same investigator, "apathy and unsteadiness of gait, and, with the advance of time, the gradual supervention of a cretinic condition, together with a lowering of the body temperature and cutaneous sensibility." As to the adrenals, death occurred very soon after the removal of both organs, but long enough sometimes to indicate the kinship to the effects just outlined, including slow respiration, anæsthesia, and hypothermia. "The animal lies on its side in a state of intense weakness, is very drowsy, refusing to move, and may have *convulsions,*" as stated by Auld.

Dr. Sajous explains the process as follows: Hypothermia and other signs of *lowered* oxygenation are present, and, along with these, *convulsions.* Here the accumulation of a toxic is evident: the avidity of the tissues for oxygen is such that they practically deplete not only the red corpuscles, but the plasma also, of this gas. Metabolism continuing in the tissues,—though at a lower rate, as shown by the lowered temperature, the lassitude, and the muscular weakness,—waste products accumulate in the blood. Convulsions then appear, but as a terminal sign. Whether the supply of oxygen be reduced by removal of either of the three organs in question, or by withholding the air-supply, as in asphyxiation, the one and same cause prevails in the author's opinion, *i.e.,* an accumulation of waste products in the blood-plasma, and an intense excitation of the sensory terminals of nerve-cells.

As to the cause of the accumulation of waste products in the blood-stream, the answer is afforded by the action of thyroid extract. Hoffmeister[19] had found that iodothyrin could cut short the symptoms that followed removal of the thyroid, including convulsions. Baumann and Goldmann[20] had shown that thyroidectomized dogs did not suffer from tetanic convulsions as long as adequate doses of iodothyrin were administered, and that they recurred when the iodothyrin was withdrawn. Since, as emphasized by Hutchinson[21] and many other investigators, all the systemic oxidation processes were increased by the use of thyroid extractives, oxidation was obviously the underlying factor which prevented, either

directly or indirectly, the accumulation of spasmogenic elements. Magnus Levy[22] and Scholz[23] had found that thyroid extract increased the consumption of oxygen and the proportion of carbonic acid excreted. Mendel, Roos, Napier, Ord, Voit,[24] and other physiological chemists had noted that it increased the excretion of the products of catabolism.

But the paramount point to therapeutists was that the *convulsions* ceased when, under the influence of thyroid extract, the oxidation processes were brought to a sufficiently high level. Evidently the blood was thus purged of its toxic elements, the increased tissue respiration having entailed their conversion into benign eliminable products. In other words, the spasmogenic poison was overcome by the *protective* element of the organism—a product of its ductless glands.

This applied, in the author's opinion, to any form of convulsion, whether due to accumulated waste products or to a specific toxic—whether, in a word, it occurred during puerperal septicæmia, epilepsy, hydrophobia, or tetanus. The present mainstays in the treatment of these disorders, the bromides and chloral hydrate, did precisely the opposite. As stated by H. C. Wood, the bromides caused depression of temperature. Of chloral, the same therapeutist had said: "A most remarkable action of chloral is upon the temperature: in this point all observers are in accord with Richardson, of London, who has seen the temperature fall 6° F. in a rabbit."

The *protective*, curative element in the diseases referred to being *hyper*-oxidation, what could we expect of induced *hypo*-oxidation? Dr. Sajous pointed to the mortality ratio of rabies, tetanus, and puerperal eclampsia treated on those lines as an answer to that question. These drugs reduced the excitability of the sensory elements, but they aided the accumulation of the spasmogenic toxics by inhibiting the oxidation process through which they were destroyed.

Last year the author had advocated precisely the opposite course—*i.e.*, lines of treatment which would increase the functional activity of the adrenal system, and thus would do precisely what thyroid extract did after removal of the thyroid, *i.e.*, enhance the functional activity of the pituitary body.

Nicholson[25] had not only found that in puerperal eclampsia the normal enlargement of the thyroid (to which Lange called attention after examining one hundred and thirty-three women) which betokens increased functional activity was not present, but that the nitrogenous metabolism was lowered. He had obtained excellent results by the use, with a pure milk, of 7 $^1/_2$-grain doses of thyroid extract every three or four hours, and morphine (a drug which in therapeutic doses stimulated the adrenal system) as an adjunct.

Dr. Sajous's view that the adrenal *system* was involved in such processes was sustained by the fact that its general center, the pituitary body, also gave evidence of excessive action. In 1898, L. Comte[26] had examined the pituitary body in a number of women who had died during pregnancy; he had found not only that this organ was hypertrophied in every case, but that the *anterior lobe* was alone the seat of the hypertrophy. Dr. Sajous pointed, last year, to this lobe as the governing center of all oxidation processes. P. E. Launois and P. Mulon[27] had recently examined histologically the pituitary of two eclamptic women, each aged about 30 years, and had been brought to conclude by histological examination

that during pregnancy the pituitary body gave evidence of marked overactivity. This exemplified, according to the author, the underlying principle involved in all toxæmias attended with convulsions.

[*Commentary.*—In the April issue of this journal it was stated that Prof. A. E. Wright, formerly of Netley, had noted the presence in the blood "in considerable quantities" of a secretion the source of which he deemed unknown, and of which diphtheria antitoxin was the most familiar example. Believing that "all the protective substances" in the cure of disease "were to be regarded as produced by internal secretion," he employed Koch's new tuberculin in various conditions, to induce the appearance in the blood of the "antidotal substance" referred to, and obtained what he termed "extraordinarily good results" in some thirty cases of various kinds.

Early last year I pointed out the origin of this substance and its composition: *i.e., trypsin,* a proteolytic ferment, derived originally from the pancreas; *adrenoxin,* a compound of adrenal secretion and oxygen absorbed from the pulmonary air; and *fibrinogen,* a nucleo-proteid derived from leucocytes and rich in phosphorus. While the first is the true bactericidal and antitoxic agent, its activity is enhanced through the interaction of the two latter, mainly owing to the heat-energy this interaction develops. When certain poisons, such as Koch's tuberculin, diphtheria toxin, tetanus toxin, etc., are artificially introduced into the blood, their presence powerfully stimulates the organs which produce these three bodies and they accumulate in the blood, forming therein the *protective* substance referred to in the above abstract. It is doubtless the identical substance to which Professor Wright alludes.

I have also expressed the belief that Pasteur's antirabic treatment produced its beneficial effects by enhancing the production of protective substances in the blood. Fortunately, the profession has learned, through Pasteur's labors, that it is not when the death knoll has sounded, *i.e.,* when convulsions have *begun,* that curative measures should be instituted. The bitten subject is sent as early as possible to some Pasteur Institute and his blood, amply supplied with protective substance as a result of the injections, destroys all pathogenic elements long before they *have had time* to command the situation. Pregnant or parturient women also receive at the hands of their obstetrician the benefits of prophylactic, *i.e.,* dietetic, treatment to offset renal lesions, the precursor of puerperal eclampsia.

Very different is it, however, in tetanus. Here the injuries are seldom of sufficient magnitude to warrant the expense of a physician's visit, and, when he is called in, it is usually to witness the terminal stage. The large mortality of the last Fourth of July celebration, among children, may doubtless be primarily ascribed to inadequate early care of the wound and other prophylactic measures.

A postal card to each family under a physician's care or a warning to the public through the lay press, recommending the immediate medical attention in case of injury, etc., would do much to prevent the development of the disease.

The great value of prophylactic measures was recently emphasized by S. C. Stanton.[28] The following procedures are recommended: "The open treatment of all wounds, however insignificant, in which, from the nature or surroundings, there is any risk of tetanus. By open treatment is meant the free opening of the wound, cleansing from all foreign substances, swabbing thoroughly with 95-per-cent. carbolic acid, followed by open dressing of the wound, with the institution of drainage. During the preparation of the grounds and buildings for the World's Fair in Chicago, at which time the conditions for the development of tetanus were exceedingly favorable, by reason of the excavation, turning over of black soil, etc., more than 1500 cases of punctured, incised, and contused wounds were treated by the surgical staff on the grounds; in most instances the patients returned to work in two or three days, and *in no case did tetanus develop.*

"The immediate use of tetanus antitoxin in all cases of Fourth of July wounds, wounds received in barnyards, gardens, or other places where the tetanus bacillus is likely to be present or tetanus infection to occur. The neutralization of any toxin still in the blood and not yet fixed in the nerve-cells can be effected by the injection of from 5 to 10 cubic centimeters of tetanus antitoxin. This injection should be made as early as possible, and while its use may seem superfluous in cases in which wounds have been treated immediately and thoroughly, still it does no harm and gives additional assurance to the patient."

As to the treatment of the disease itself, we have, in the effects of thyroid extract in the tetanus that follows thyroidectomy, testimony to the curative influence of stimulation. In the Baccelli carbolic acid treatment the adrenal system is likewise powerfully stimulated, and, while the death-rate under the use of chloral, the bromides, etc., is very large, that under the carbolic acid method is very small. The strength of this statement may be illustrated by a case recently reported by Dr. A. H. Fabrique,[29] who, out of twenty-five cases of tetanus observed in private practice treated by various measures, including the use of antitetanic serum, had "never before" seen "a fully developed case recover." The treatment adopted by Dr. Fabrique in the successful—typical, fully developed—case reported was as follows: "The Baccelli carbolic acid treatment was determined upon. Thirty drops of a 2-per-cent. solution of pure carbolic acid were administered hypodermically every eight hours for the first twenty-four. The dose was increased to 75 drops every four hours on the second day, and to 100 drops every four hours on the third day. Morphia, $^1/_8$ grain, was given once or twice a day during the first four days to induce sleep. On the third day after beginning the treatment

all the symptoms showed a marked improvement. The convulsions became gradually less frequent and less severe. On the tenth day they did not occur unless the patient was moved suddenly, or unless some unusual noise was made; the tonic condition of the muscles had so far improved that the boy was able to move himself about in bed and to take a liberal amount of nourishment. The right hand and arm, however, remained rigid and the face muscles, although much improved, still retracted the corners of the mouth. The pulse and temperature generally decreased until they became normal.

"The urine was carefully watched, but never indicated any pathological condition of the kidneys. It never became cloudy. The specific gravity was always high—about 1.026. The reaction became alkaline shortly after the carbolic acid was first administered, and there was a heavy sediment of phosphates.

"After the tenth day no medicines were administered. The improvement was gradual, but uninterrupted. The muscles of the right hand and arm recovered much more slowly than the other muscles, and were quite stiff when the patient was allowed to go home July 18th, when otherwise he had apparently recovered from the attack, although somewhat weakened by the long siege. Since his return home the boy had entirely recovered."

As previously emphasized, morphine is an excellent adjuvant to the Baccelli method. I may quote, in this connection, an opinion advanced last year,[14] which, read in the light of Dr. Wright's experience, may prove suggestive: "Carbolic acid is able not only to counteract the insufficiency of the adrenal system, and cause the latter to resume its normal functional activity, but also to raise this activity *beyond* the normal, flood the circulation with its defensive and offensive weapons, and convert the enemies of the organism into benign elements."

C. E. DE M. SAJOUS.]

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Cyclopædia of Current Literature.

ALCOHOLISM, PATHOLOGY OF.

In all cases of inebriety there are marked changes in the capillary and vascular system of the brain. The walls of the vessels show fibrinous deposits and sclerosis. The nerve-cells and dendrites are altered and retracted, and in some cases permanently destroyed; in all inebriates a shrunken and disintegrated state exist. The liver, kidneys, and heart show diminution or enlargement with fibrous and fatty deposits. Both the organic and functional activity of the organ are changed and sclerotic states are present. Conditions of starvation and poisoning exist in all cases. Pathological changes are present in the paralysis of the sense-organs and the higher physical functions of the brain. These conditions are so common following the use of alcohol, sometimes in its moderate use, but always when taken in excess, as to constitute a pathology that is traced directly to alcohol as the most prominent cause.

Recent researches into the chemico-physiological action of alcohol on the heart, blood-vessels, cells, and nerve-fibres show a paralyzing and eroding action that cannot be mistaken for any other cause. The peculiar brain and nerve wreckage so commonly seen in persons using alcohol is due to the specific cause, alcohol, following a uniform line of degeneration which is traceable with more or less exactness. T. D. Crothers (Quarterly Journal of Inebriety, April, 1904).

BLADDER IN VENTRAL SUSPENSION. EXAMINATION OF THE.

In all cases requiring ventral suspension the bladder should be thoroughly examined by a cystoscope. In none of the twenty cases reported was there any trouble with frequent micturition after

the operation of ventral suspension, except where there was some evidence found which would cause such disturbance. The new position of the bladder after ventral suspension aided and relieved, rather than caused, frequent micturition. The said operation may have caused this relief by removing pressure from the neck of the bladder, which pressure undoubtedly helps to cause frequent micturition. The left ureter opening and surrounding parts were often affected, but the cases are too few to state positively why this existed in these cases.

Immediate and prompt treatment saves much suffering and adds much to the surgeon's reputation and to that of the operation. By examining the bladder and surrounding parts cases may be found in which suffering may be relieved when for some reason an operation for uterine disease cannot be performed. To make such examination eliminates errors, and is more scientific; and, the more exact we become, the firmer ground we tread. Swithin Chandler (New York Medical Journal and Philadelphia Medical Journal, May 28, 1904).

BLOOD-PRESSURE, CLINICAL METHOD OF DETERMINING THE VASOMOTOR FACTOR IN.

Blood-pressure is an expression of action of two chief factors: ventricular force and vasoconstriction. Inhalation of amyl nitrite dissipates the vasoconstrictor factor and brings into play the ventricular force which is the real factor to be encouraged in a failing heart. The vasoconstrictor factor may and does compensate myocardial inadequacy, for it is essential in most cardioarterial diseases for the blood-pressure to be maintained to afford better nutrition for the heart and to augment arterial elasticity as a means of establishing the blood-circulation. The recognition of the myocardial and vasomotor factors in blood-pressure guides us correctly in the administration of cardiotonics. In the individual endowed with cardiac health, the removal of the vasomotor factor by inhalation of amyl nitrite causes an increase in blood-pressure, whereas the converse condition causes the latter to fall and the degree of reduction is proportionate to the degree of cardiac enfeeblement. In other words, the high blood-pressure in myocardial disease is maintained by an augmented tonus of the vasomotor center. Thus, the blood-pressure may fall from 240 millimeters before to 180 millimeters after inhalation of amyl nitrite in arteriosclerotics with enfeebled hearts. Even this reduction in blood-pressure is not low enough to correspond with the tones of the feebly-acting heart; hence one is constrained to conclude that the action of the amyl nitrite does not suffice wholly to eliminate the vasomotor factor.

The execution of the foregoing manœuvres in estimating heart-vigor is by no means comparable to a correct method of cardiac auscultation, although the latter method does not indicate how much of the cardiac force may be attributed to increased peripheral resistance; cardiac auscultation in conjunction with the sphygmomanometer and the inhalation of amyl nitrite constitute the ideal methods for eliciting the real condition of things.

In estimating blood-pressure the sphygmomanometer only gauges the force of the left ventricle, and to determine the sufficiency of the right ventricle, auscultation of the pulmonic sounds, and a physical examination of

the lungs are alone adequate. Albert Abrams (American Medicine, May 28, 1904).

CANCER, CARDIAC DULLNESS IN CASES OF.

Great reduction or obliteration of the normal cardiac dullness is common in cases of cancer, particularly in cancers of the alimentary canal and in their late stages. This loss of cardiac dullness does not seem to be found in the earliest stages of a cancerous case, but may precede cachexia, marked wasting, and loss of skin elasticity. It is rarely observed in noncancerous cases. It is rarely absent in the later stages of cases of cancer of the alimentary canal. It does not seem to occur in cases of sarcoma. In doubtful cases its presence is highly suggestive of cancer; its absence is slightly suggestive of the absence of cancer, if the symptoms under consideration have lasted for several months. W. Gordon (Lancet, April 9, 1904).

CARCINOMA OF THE BREAST, INJURIES TO THE AXILLARY VESSELS OCCURRING DURING OPERATIONS FOR.

Injuries to the axillary vein occurring during operations for cancer of the breast, performed under aseptic methods, are in no way serious. A passive œdema of the arm rarely occurs, and when it does is slight and transient. Slight injuries may be repaired by a lateral ligature or a running suture. A forceps left in place forty-eight hours may be used where the application of a suture is difficult. Where injury to the vein is extensive or when the situation of diseased tissue makes it desirable, it may be boldly tied above and below and the lumen occluded without fear or bad results. R. R. Smith (Annals of Surgery, May, 1904).

CONSTIPATION, CHRONIC.

Chronic constipation has long been the subject of widely different views so far as its importance as a factor in disease is concerned. On the one hand, we have those who, like Bouchard, Glènard, and Feyot, hold it responsible for the gravest symptoms, attributable to auto-intoxication from resorption of fæcal matter; and, on the other hand, those who, like Osler and Boas, think that auto-intoxication from this cause is rare, and that the great majority of persons with chronic constipation suffer little inconvenience from this condition. The experience of most practitioners bears out the latter view. Every physician knows of persons in fair health who have infrequent and scanty stools, while cases are on record of apparently healthy individuals who habitually went from two weeks to several months without any evacuations from the bowels. This "primary functional habitual constipation" is almost universally attributed to an abnormality of the nerves of the intestinal wall, leading to a lessening of normal peristalsis—atonic form—or to a spasmodic contraction of the muscular coat—spastic form. Nothnagel adds to these a form due to atrophy, congenital or acquired, of the muscular coat. This theory, almost unanimously accepted, was called in question two years ago by Strassburger (Zeitschrift für klinische Medicin, vol. xlvi. page 413, 1902), who advanced the theory that the diminished peristalsis in chronic constipation is due, not to any abnormality in the innervation of the intestine, but to absence of the usual stimulus to peristalsis. Normally the stimulus is furnished by the products of bacterial fermentation: the acids, soaps, and gases. Strassburger succeeded in

demonstrating the fact that the fæces of chronic constipation are abnormally poor in bacteria; that, while normal twenty-four-hour fæces contain 88 grammes of bacteria (after all fluid has been removed by evaporation), the fæces of constipated persons contain only from 2.6 to 5.5 grammes. The reason for this diminution he finds in the composition of the fæces, which are almost devoid of remnants of the ingested food, such as muscular fibers and cellulose sheaths, the usual nutrient medium for the intestinal flora. Strassburger thus concluded that the underlying cause of chronic constipation is a too complete utilization of the ingested food. These statements of Strassburger seem to have just received confirmation at the hands of Lohrisch (Deutsches Archiv für klinische Medicin, vol. lxxix, page 384, 1904), working in Schmidt's clinic in Dresden. Lohrisch finds that the amount of fæces from normal persons averages 249.5 grammes per day; from constipated persons only 125.5 grammes, and this difference is not due to abstraction of fluids, for the difference in weight of the evaporated fæces in the two cases is still greater—59.3 grammes for the normal and only 33.9 grammes for the constipated. The diminution affects all of the constituents, but most markedly the nitrogen, which is reduced to 1.5 grammes from the normal 2.9 grammes.

Weakened peristalsis alone, as in the constipation caused by the administration of opium, gives rise to smaller stools, but this is due only to abstraction of fluid; the solid fæces are equal or even greater in amount than under normal conditions.

It might be said that this diminution of the normal intestinal contents is due to an abnormal activity of the bacteria in the intestines—to excessive fermentation. But this is disproved not only by ordinary clinical experience, which finds symptoms of normal fermentation very rarely in these cases, but also by Strassburger's researches just cited, and by the fact that the fæces from chronic constipation show no signs of such a process. They are almost odorless, neutral in reaction, and may even be kept in the incubator without decomposing.

Chronic constipation, therefore, is, according to these investigators, due to diminished motility of the intestinal wall; but this is, in its turn, due to the overutilization of the ingested food in the small intestine. The fæces in the large intestine are poor in nutriment, and cannot support bacteria enough to produce the acids and gases of decomposition which normally excite peristalsis. It follows that a rational therapy would be directed not to strengthening the motor apparatus of the intestines, but to the increase of indigestible substances in the diet in order to provide nutrient media for the intestinal bacteria. Editorial (Journal of the American Medical Association, May 7, 1904).

DIARRHŒAS OF INFANCY.

The conclusions as to the diarrhœal diseases occurring in infants which the writer was warranted in accepting up to 1897 are as follows: There were no unvarying symptoms which as a group enabled him to diagnosticate special lesions in the acute cases or in the chronic cases, and in the latter case it was not only impossible to determine which part of the enteric tract was affected, but even to be able to state definitely that there was a primary specific disease of the intestine or even if there were marked lesions present. In

acute cases it was possible to determine usually whether the small intestine or the large was most markedly affected, this being accomplished by the small number and comparatively large size of the dejections representing chiefly the small intestine, and the large number and small amount representing chiefly the large intestine.

The temperature was of considerable aid in differentiating the noninflammatory diarrhœas represented by the fermental group from the inflammatory diarrhœas represented by the ileocolitis group: that is, absence of marked lesions in the former and presence of marked lesions in the latter, the temperature being high and falling by crisis in the former and high or moderate and falling by lysis in the latter. Knowing where the stress of the lesion is situated, treatment should be by the mouth in diseases affecting the upper part of the intestine and usually of the fermental class and by the rectum in diseases affecting the lower part of the intestine and usually of the ileocolitis class. Pus or pus and blood in the intestinal contents were usually of serious import, as they pointed toward marked grave pathological lesions. T. M. Rotch (American Medicine, May 7, 1904).

EMPYEMA.

Early diagnosis of pleurisy and early operation are the prime elements in the avoidance of empyema. The general practitioner is the one who needs to be on the alert. A test for fluid should be made with the aspirating needle, not a hypodermic, as the latter is too small and short. Liquid, if present, should be immediately withdrawn; if purulent, further operation within a day or two is advisable as soon as the lung expands and the heart moves toward its normal position. Aspiration should be limited to diagnostic purposes, to the withdrawal of serum, and as a preliminary operation in empyema. In all cases of pyothorax, free drainage, not aspiration, should be the rule. The larger the openings, the quicker will cure be effected. Resection of ribs is imperative for exploration by the finger and for removal of fibrinous masses.

Washings are counterindicated, except in fœtor, and even then more perfect drainage is indicated rather than irrigation.

In old chronic cases with contracted lung and degenerated pleura, more or less excision of the chest-wall and pleura should be performed, even to the exclusion of the entire extent of all the ribs. Even in tuberculous empyema benefit is derived from thorough drainage. De Forest Willard (American Medicine, May 28, 1904).

GASTRIC CARCINOMA, DIAGNOSIS OF.

Sigel (Berliner klinische Wochenschrift, March 28, 1904) has tried some of the methods that have lately been recommended as giving early diagnostic signs of carcinoma of the stomach in order to test their reliability. The first of these is the tryptophan reaction, which was described by Erdmann and Winternitz, and consists in the production of a violet color when chlorine or bromine is brought into contact with proteinochron. This is an albuminous body found in the test-meals in cases of carcinoma. The method proved very unreliable in the author's hands, as the reaction was present in only 2 out of 15 cases of carcinoma examined, and was also positive in a case of ulcer. Salomon tests the amount of albumin and nitrogen present in the washings after the patient has been for a day on

albumin-free diet and has had the stomach washed out several times. If the albumin is high in amount by the Esbach method and the nitrogen exceeds 20 milligrammes in 100 cubic centimeters of the fluid, carcinoma is said to be present; but the author's results in twenty cases show that, though of value in special instances, the method is not infallible. Gluzinski washes out the fasting stomach in the morning and then gives two test-meals through the day in an endeavor to detect the change from an acid to a catarrhal gastritis, which occurs when carcinoma begins in an old ulcer. In 8 cases of ulcer tested in this way the results pointed toward benignancy, while in 4 out of 5 cases of carcinoma the diagnosis was corroborated by the method. The author considers that considerable reliance may be placed on the procedure, and that in suspected carcinomas if HCl is constantly present under these conditions a diagnosis of nonmalignancy may be made even if many other features point toward the more serious disease. The estimation of the fatty acids in the urine advocated by several authors did not give favorable results. He concludes that these various methods may often be of assistance, but that a broad consideration of all the clinical features is always necessary, and that purely chemical procedures cannot be relied upon to clear a doubtful complex of symptoms. (Medical Record, April 23, 1904.)

GOUT.

There is a general treatment of gout that should underlie every variety, whether the form be acute, subacute, chronic, aberrant, or minor. and independent of special manifestations that require special treatment. Colchicum, in conjunction with the salicylates or their congeners, or the alkaline carbonates, still holds the palm in the treatment of acute gout. In the aberrant form, so varied are its manifestations there can be no specific treatment. In the other forms medicine plays a subordinate rôle to diet and hygienic remedies, though the iodides are mainly to be relied upon. T. E. Satterthwaite (The Post-graduate, May, 1904).

GREATER OMENTUM, THE PROTECTIVE FUNCTION OF THE.

It is an old idea that the greater omentum plays a protective rôle with regard to the peritoneum. R. Pirone (Arch. Ital. de Biol., January 30, 1904) conducted a series of researches to determine the following questions: The details of the protective function and whether, if the blood-supply of the spleen be cut off by ligature, and if this organ be surrounded by the greater omentum, the latter will form a conjunctival sac around the spleen, renewing its blood-supply or whether it will assist in the destruction of this organ. On practicing ligature of the splenic artery on cats and rabbits the author noticed, a few days after the operation, that the greater omentum had already surrounded the spleen, completely isolating it from the peritoneal cavity. The omentum shows merely a hyperæmia, and, in spite of the presence of a fibrinous exudation, it does not adhere to the surface of the spleen. At the end of the first week adhesion occurs, a nondetachable capsule being formed, masses of fat appearing on its surface, and the omentum of which it consists being thickened and opaque. One week later this capsule is complete, fibrous, and very adherent. The rest of the peritoneum is unchanged. There is

thus observed in the case of the greater omentum that "intelligent mobility," as it has been called, which in certain conditions serves as an efficient protective organ for the general peritoneum and the organs which it surrounds. Extirpation of the spleen is not followed by any macroscopical changes in the omentum. The author studied the histological changes occurring in the omentum encapsulating the spleen undergoing necrosis as the result of ligature of its vessels. There is from the beginning an immediate emigration of leucocytes, chiefly polynuclear, which gather in the vascular spaces of the omentum, or else fill the space between the omentum and the spleen; some penetrate the capsule of the spleen. At the same time there occurs in the omentum a process which continues until the end,—namely: a very active multiplication of either the vascular cells in the wall of the serous membrane or of the endothelial cells which line it. At the same time there is also a new formation of blood-vessels, which little by little penetrate the capsule of the spleen. On the other hand, the new endothelial cells detach themselves from the newly formed tissue, and, undergoing marked intracellular changes, are transformed into macrophagocytes, which act as such. These are soon found filled with the cellular *detritus* of the necrosing spleen, broken-down nuclei, red corpuscles, granules of hæmatoïdin, etc. This represents the culmination of the process which gradually subsides, and a little later (the third week in the rabbits) the necrotic tissue of the spleen has been replaced by an omental cicatrix. The omentum thus serves two functions: the plastic character of its vascular and endothelial tissues enables it not only to act the part of a scavenger in removing the dead splenic substance, but also to shield the peritoneal cavity and thereby the entire organism. (Medical News, May 14, 1904.)

GROWTH OF THE HUMAN BODY, LAWS OF.

The statistical method of studying the laws of the normal growth and development of the human body leads to wrong conclusions. For a number of years the writer weighed and measured his own five children at frequent intervals and found that the first condition in the study of the laws of growth is individualism, in the sense that in each case the exact circumstances under which growth takes place should be considered. Observations upon the weight and measurement of a large number of children taken indiscriminately among the inmates of institutions, etc., are not of such value as the study of a number of perfectly healthy children who are growing under the same conditions. It is very difficult to find such a group of children, but the laws of growth among such a group, as deduced from daily observations for a number of years, would be of great scientific and practical value. The laws of growth during the nursing period have been fairly well worked out, but the statistical data from individual observations are very scanty regarding the growth of older children. Hansen attempted to prove that there was a certain periodicity in the weight of children. He asserts that there is a periodical variation in the weight each week, depending upon the differences in the appetite which are said to recur every seven days. He also found periodical variations every twenty-six days, which he thought depended upon variations of the sun's heat, and finally periodical changes in the weight every

seventy-two days, also dependent upon the intensity of the solar heat. Hansen also evolved a beautiful theory that the variations in weight are dependent upon variations in the amount of a new force which he called the "energy of growth." He goes so far as to assume that this energy partakes of the properties of the ether and vibrates parallel to the ether-waves, varying with the variations of solar heat. Another hypothesis of Hansen is that the "growth of energy" is derived directly from the sun and is contained in solar heat, or accompanies the latter, varying in direct proportion with it; that it reaches the earth with the same velocity as the solar rays, and on reaching the earth separates from heat and is taken up by all the growing organisms. Every living organism exhibits, therefore, harmonic variations in growth. This attractive theory is based, however, upon very insufficient data, obtained by the statistical method which generalizes from data obtained with the greatest variety of conditions of growth in development. A. K. Karnitsky (New York Medical Journal and Philadelphia Medical Journal; from Roussky Vratch, February 14, 1904).

GYNÆCOLOGICAL SURGERY, CONSERVATISM IN.

Great caution should be observed about applying conservatism to cases known to have been recently infected. The advent of an acute attack of localized peritonitis in a patient suffering from chronic infection—in other words, an acute "lighting up" of an old infection—does not contra-indicate conservatism. The presence of acute infection in one tube, which it is deemed advisable to remove, does not call for removal of the other tube also, unless it is similarly diseased. The longer the patient has been infected, the more likelihood there is for the pus or inflammatory products in the tube to be sterile and the more safely may conservatism be considered. Of the two procedures, resection of the tube and amputation of the tube, the latter is the safer procedure, as a lot of thickened, inflamed, and more or less infected tissue is not left behind to menace results, and that a stump of a tube is capable of carrying an ovum to the uterus has been demonstrated. W. F. B. Wakefield (International Journal of Surgery, May, 1904).

HAY FEVER.

The writer calls attention to the differences of spring hay fever, due to the pollen of grasses, and the fall hay fever of this country, which is not observed in Europe to any extent. He examined all the pollen which was ripe at the time the fall hay fever begins, and found that the ragweed pollen was the only one that had all the characteristics of any hypothetic exciting cause, and this agreed with what had been before suspected. It is a very light, odorless, tasteless, nonsticky powder, and is probably carried long distances by the wind. He has been able to isolate from it a white, amorphous substance which has the toxic effect of hay fever. It is soluble in salt solution and glycerin, but not in alcohol or ether. It can be filtered through a Berkefeld filter, and will not dialyze through animal membrane. It loses its toxic properties at 80° C. He has named it ambrosin. The residue left when the ambrosin has been extracted is perfectly inert. He made a number of experiments on persons subject to hay fever at a time when they were not suffering from it, and in each case produced symptoms of the disease,

which passed off in a short period. In one case he made applications of the solution to the eyes of several students, not knowing that there was a hay fever patient among them, and supposing them all immune. One immediately complained, and, on being questioned, proved to be a hay fever sufferer. He proved by forcing air through a considerable quantity of the substance and allowing the patient to breathe the air that there was no volatile constituent. The goldenrod pollen, he finds, is practically innocuous. The pollen theory is correct, but not when it explains hay fever, being due to mechanical irritation of various pollens on the mucous membrane of the air-passages. The mechanical irritation is no different in the hay fever sufferer than in the immune. We cannot attribute it to a local chemical action on the mucosa. Besides the ragweed pollen, there exists in the hay fever patient a systemic, not a localized, condition that allows the so-called toxin to act as such. It has two effects on the hay fever patient; first, a local irritating property and the other its action on some part of the central nervous system, irritating the centers and producing a condition of hyperæsthesia. The writer admits that there may be cases that are not due to this factor, but thinks that the majority of fall hay fever cases can be attributed to the ragweed pollen. Otto Scherer (Journal of the Michigan State Medical Society, May, 1904).

ICTERUS, PATHOGENESIS OF.

Ravenna and Gentili (Lo Sperimentali, February, 1904) describes the histological results of experiments made to determine, in the first place, the action on the liver of some substances which destroy the red blood-corpuscles, and ultimately to explain the causation of jaundice. Exhaustive experiments having been previously made on the action of chlorhydrate of phenylhydrazin and of toluylendiamin, they made only a few experiments with them. They state that repeated injections of chlorhydrate of phenylhydrazin in rabbits produce destruction of the protoplasm of the hepatic cells and fusion of their elements, intense and diffuse hyperæmia, and the appearance of free or intercellular biliary pigment. Injections of toluylendiamin determine in dogs and rabbits an intense fatty degeneration of the hepatic cells, with dilation and stasis of the blood-capillaries between the acini. These results agree with those obtained by previous observers. More numerous experiments were made with pyrogallic acid. The authors state that this poison produces necrosis of the protoplasm of the hepatic cells, with atrophy of their nuclei and anomalous distribution of the nuclear chromatin, and in all cases—except when the injection was limited to a single small dose—they found dilatation of the intra-acinous capillaries. They were unable to verify the description given by Afanassiew of an interstitial hepatitis resulting from pyrogallic acid, probably because the doses used by them always caused death within three or four days, while his experiments on each animal usually lasted at least twenty days. The subcutaneous injection into a rabbit of 25 centigrammes of pyrogallic acid determines an accumulation of granules and of concentrations of biliary pigment within the hepatic cells. This pigment gradually increases until it reaches a maximum six hours after the injection. Then it gradually diminishes and disappears, returning again after a fresh introduction

of the toxic substance. Rabbits killed one or two days after a single subcutaneous injection of 50 centigrammes of pyrogallic acid show necrosis of the hepatic cells and breaking up of their protoplasmic substance with atrophy of the nuclei. A single large dose of pyrogallic acid, such as 1 gramme, injected into the jugular vein of a rabbit, causes very acute poisoning, and the death of the animal after a few hours with symptoms of bulbar paralysis, and in the liver rapid destruction of the protoplasm of the hepatic cells. Subcutaneous injections of phenylhydrazin, toluylendiamin, and pyrogallic acid all cause dilatation of the biliary capillaries, and dilatation and stasis of the blood-vessels of the liver, especially the intra-acinous capillaries, but biliary stasis is only caused when the icterus is very intense. As these poisons usually determine albuminuria as well as icterus, the authors also examined the kidneys, and found that all three poisons produced similar symptoms of an intensity proportional to the dose employed. These symptoms affected mainly the epithelial protoplasm of the uriniferous tubules. The process was one of necrobiosis, with fusion of the epithelial biosis, with fusion of the epithelial elements, breaking up of the protoplasm, and formation of a granular *detritus* often occupying the lumen of the uriniferous tubule. At the same time there were similar alterations in the Malpighian glomeruli, with solution of continuity of Bowman's capsule, and the presence of a granular *detritus* in the dilated capsular space. Of all the changes noted by them the authors attach most importance to the granules found in the hepatic cells up to five or six hours after each injection. The theory which they base on these observations is that a moderate injection of pyrogallic acid—for example, 25 centigrammes—sets free a quantity of hæmoglobin, which is carried to the liver and there transformed into granules of biliary pigment, subsequently leaving the liver in the bile, but that large doses of the poison have a specific toxic action on the epithelial cells, and that after large doses or repeated small doses the cells are unable to eliminate in a natural manner the pigment brought to them, which has therefore no channel open to it except through the capillary blood-vessels. (British Medical Journal, May 14, 1904.)

LARYNGEAL TUBERCULOSIS, LOCAL TREATMENT IN.

Local treatment is always beneficial even if it only relieves the most distressing symptom: *i.e.*, pain. It depends entirely upon the general condition of the patient what form of local treatment is most advisable. While laryngeal tuberculosis in some cases may be entirely cured, there always remains more or less chronic laryngeal catarrh. Extensive surgical procedures in cases in which the lungs are deeply involved except as palliative treatment are unjustifiable. Extensive curettement should only be employed in those cases in which there is a fair chance of curing the disease and when it is necessary to prolong life a short time.

The prognosis depends more on the general systemic condition of the patient than upon the throat lesion. It naturally follows that, the more severe the throat lesion, the greater the degree of constitutional weakness. If a case is seen at an early stage of its development, the prognosis is good, provided, of course, the concomitant lung disease is responding to treatment. When there is much ulceration and loss of tis-

sue, absolute cure is impossible, but such an amelioration of symptoms may be brought about as to render the patient fairly comfortable for the rest of his existence. The best results are obtained when the tuberculous deposit in the larynx is localized. R. H. Skillern (American Medicine, May 7, 1904).

LARYNX, REMOVAL OF, UNDER COCAINE.

Wreden (Roussky Vratch, March 6, 1904) reports a case of cancer of the larynx in which he removed this organ under local anæsthesia. The substitution of local for general anæsthesia in this operation is very desirable, because of the frequency of postoperative pneumonia which follows laryngectomy in spite of the latest forms of cannulæ with tampons which are employed during this procedure, when chloroform is given. In the case reported the patient received 1 gramme of a 1-per-cent. solution of morphine and 0.0012 gramme of scopolamine fifteen minutes before the operation. The first step was tracheotomy under cocaine. Then the larynx was removed according to Billroth's method from below upward, a 1-per-cent. solution of cocaine being injected into the lines of insertion of the muscles to be divided and into the mucous membrane of the larynx along the incision. Altogether twelve hypodermic syringefuls of this solution were used. The operation was entirely painless. (New York Medical Journal and Philadelphia Medical Journal, May 14, 1904.)

MALARIA, THE NOSE AND.

Ziem (Arch. Ital. di Otol., Rinol., e Laringol., November, 1903) states that malaria is caused: by injection of malarial blood; by mosquito bites; by bad drinking-water; by inhalation of putrid marsh vapors; and he considers the last of these causes the most frequent and important. He attributes suppurations of nose and breast, often of an obstinate nature until their cause is recognized, to the malarial exhalations from marshy ground, from damp cellars, and to the inhabitation of houses built on infected earth. Hence the danger of sleeping on the bare earth; but if the couch be raised from the ground he considers it safe to sleep without special protection from mosquitos, such as is afforded by nets. The writer considers that a change from a less healthy to a more healthy house is frequently indicated in the treatment of nasal suppuration, and states that an enlargement of the spleen is frequently associated with an infective coryza. He attributes some cardiac neuroses, noises in the ears, sclerosis of the middle ear, and suppuration of the hip and other joints to malaria. He illustrates the causation of these and other symptoms by a history of his own illness from the age of 4 years onward. The striking features of these illnesses have been suppuration of the hip-joint, obstinate inflammation of the elbow, nasal inflammation, headache, sweating, and fever. They have proved intractable when treated by quinine, and have been treated with great success from time to time by change of residence, and by what is now known as the open-air treatment. The symptoms are all attributed to malaria, because there has been enlargement of the spleen, and the illness began when he was in the near neighborhood of a marsh. (British Medical Journal, May 7, 1904.)

MAMMARY CANCER.

Cancer of the breast is at first a local disease. Metastases occur in only 24 per cent. of cases during the first year.

The complete operation of recent years has demonstrated that local recurrence can be prevented in from 74 to 82 per cent. of cases even when many have gone a year or more. The conclusion necessary follows that, if all cases were operated upon within the first year, 75 per cent. of permanent cures might reasonably be expected, and if within six months a considerably higher percentage. It is the duty of every physician to embrace such proper occasions as offer to educate the laity as to the dangerous probabilities inherent in every breast tumor and the necessity for early and complete surgical treatment. W. A. Dennis (St. Paul Medical Journal, June, 1904).

MENSTRUATION.

The writer removed the uterus and one tube and ovary from each of two patients. In both these cases, through a curious accident, the uterine end of the tube left behind became attached to the vagina and its lumen remained patulous. Both these women menstruated regularly for several months after operation; indeed, they continued to menstruate until the author, fearing a tubal pregnancy, closed the orifices of the tubes. In both cases the tubes were sealed five months after the operation. The author believes that the dominant factor in menstruation is the ovary and ovulation; that from the ovary, or its sympathetic nerve ganglia in the pelvis and abdomen, there springs the impulse for reproduction of the species; that menstruation is a retrograde process, the result of a failure of fertilization of the ovum, and that the tubal mucous membrane as well as the endometrium participates actively in the process of menstruation. J. R. Goffe (Medical Record, May 7, 1904).

OBESITY, TREATMENT OF.

Grocco (Riv. Crit. di Clin. Med., February 27, 1904) divides cases of obesity into two classes: those who take in too much food and drink, and those who do not execrate enough of the products of metabolism; but the distinction is not absolute, and no case should be treated as if only one thing were at fault. The objects of treatment should be: (1) to remove the etiological element which is disordering metabolism; (2) to redress any disproportion between intake and output; (3) to combat the morbid effects of the actual deposit of fat. The author attaches great importance to a dry diet where it can be tolerated, but in some it sets up gastric and intestinal disturbances, and even causes renal colic, gout, or neurasthenia. A dry diet is likely to be useful to those fat persons who habitually drink much. If the elimination of urine is unchecked the treatment is probably doing good, but if digestion is interfered with, if sweating stops, and especially if the urine becomes scanty and of high specific gravity, the treatment should be laid aside.

Meals should be small and frequent—four or five in the day, and liquid should be taken about two hours before a meal. The restriction of fluids is an empirical measure, and the author does not accept any of the explanations of it which have yet appeared. The reduction of food and drink should be gradual, and not more than 1 kilogram of body-weight should be lost in one week. The albuminoids should not be reduced to such an extent that more nitrogen is lost than is supplied in the food. When allowance is made for the fact that not all the food ingested is really absorbed it is probable that the excretion of nitrogen by the kidneys should not be more than 90 per cent. of the

nitrogen in the food. Repeated examinations of the urine should be made to determine the sufficiency of the nitrogen supplied, especially if there is any intolerance of treatment, for the organism may need more nitrogen at one time than at another.

It is impossible to draw up a satisfactory diet sheet to suit all patients. The details must be carefully determined in each case to suit the patient's habits and convenience. The treatment ought not to be accompanied by severe hunger, but by a sense of well-being. A reduction of alimentation is only a part of the treatment—of varying importance, according to the degree to which the patient has habitually carried the abuse of food.

Among measures for increasing the output of the system the first place is given to muscular activity, especially in the case of fat people of idle habits. Where the heart and vessels are healthy all forms of exercise are good if performed gently at first and not carried to the point of painful fatigue or oppressive dyspnœa. Massage, local and general, is indicated, especially when the fat is localized in the abdomen. Warm baths, sea-water baths, and medicated baths are recommended, especially those containing carbonic acid, the chlorides and alkalies. Of mineral waters for drinking, the author recommends, especially, sulphated, alkaline, chloride and alkaline, and ferruginous alkaline chloride waters. The good results obtained in the treatment of obesity at Marienbad and other places are not due simply to the waters, but to the use of the whole physico-therapeutic resources of these places, combined with restriction of diet. Those who drink the waters and do not reform their habits grow no thinner, but in some cases develop a more vigorous appetite, and become fatter than before.

Unlimited sleep favors the development of obesity, and its restriction is a part of the treatment. Excessive mental work causes deficient muscular activity, and should be checked. Mental distraction and change of scene and climate are valuable aids to the reduction of obesity. Clothing should not be so warm as to prevent the cutaneous dispersion of heat. The methodical and abundant inhalation of oxygen is also recommended.

The use of drugs should be, for the most part, confined to what is necessary in order to combat constitutional conditions which have led to obesity. Among these conditions Grocco mentions gout, scrofula, and chlorosis. The excessive use of purgatives, iodides, and thyroid preparations is deprecated, though all these are useful in some cases, if prescribed in moderate quantities and taken only for a moderate time. Iron, strychnine, and phosphorus are useful, and in cases of cardiac weakness sparteine, caffeine, and strophanthus. In every case the treatment must be founded on a careful analysis of the intake and output of the body.

Success will depend to a great extent on the stage at which treatment is begun. Treatment is especially necessary in cases of obesity beginning in early life. Cure is not complete until the patient has been relieved of his excess of fat and has settled down to a permanent way of living which does not lead to undue increase of weight. The change from a treatment of maximum intensity to a regimen involving only such restrictions as are absolutely necessary is to be made in the same gradual manner as the progress from ordinary life to a treatment of maximum intensity, and

throughout the whole course the greatest effort is to be made to avoid any interference with digestion, any injury to the heart or nervous system, and any wasting of the nitrogen of the body. These indications cannot be met if the physician allows the order and intensity of his treatment to be varied at the whim of a too eager patient. (British Medical Journal, May 21, 1904.)

OSTEOMYELITIS, ACUTE INFECTIOUS, OF THE SPINE AND ACUTE SUPPURATIVE PERIMENINGITIS.

The vertebral column is rarely the seat of the acute infectious osteomyelitis. Sixty-two cases have been collected and analyzed in the present communication. Great diagnostic difficulties are sometimes encountered, owing to the immediate relation of the spine to the vital organs of the thoracic and abdominal cavities and the spinal cord and its membranes. Hence retropharyngeal, mediastinal, retroperitoneal, and paranephritic abscesses, pelvic abscesses, peridural suppurations, and general pyæmia may be mentioned among the more important complications. Peridural abscess or suppuration occurred in 24 of 62 cases. Of these, 15 cases presented grave symptoms of compression of the spinal cord. The essentials of the clinical picture consist of the symptoms of a severe general infection, associated with the local signs of an inflammatory process of the spine: *e.g.*, excruciating pain and tenderness, œdema, and fluctuation. The mortality of the affection is 50 per cent. Immediate and thorough surgical interference is the only treatment. Some systematic writers accept, and cases are recorded of, a primary suppurative perimeningitis or idiopathic suppuration of the loose peridural areolar tissue. Twenty-four cases of the so-called primary suppurative perimeningitis were collected, 11 of which presented sufficient data for purposes of analysis. J. Ramsay Hunt (Medical Record, April 23, 1904).

OVARIAN CYSTS, MALIGNANCY OF SOME APPARENTLY BENIGN.

It is impossible by mere macroscopical examination to distinguish between benign and malignant ovarian cysts. Every ovarian cyst should be submitted to microscopical examination to determine its precise nature and give accuracy and precision both to diagnosis and prognosis. Every ovarian cyst should be submitted to operation and removed with the least possible delay after its discovery, because of the uncertainty of its nature. They should invariably be removed entire, without being tapped or punctured, the abdominal incision being prolonged to the necessary extent. The risk of sowing malignant cells broadcast and implanting them on the peritoneal surface, where they may proliferate luxuriantly, is thereby avoided. During the operation of ovariotomy the ovarian pedicle should be ligatured and cut through as near the uterus—that is to say, as far away from the diseased tissues—as possible. Nothing in the nature of conservative surgery is permissible in dealing with ovarian cysts. F. E. Taylor (Practitioner, May, 1904).

PAIN, REFERRED, IN VISCERAL DISEASE.

the writer advances the following hypothesis regarding the site of referred pain in visceral disease: Viscera lateral in origin and development, if they give rise to pain or hyperæsthesia at all, refer to their own side of the body wall. Viscera bilateral in origin, but asym-

metrically developed, refer their pains and hyperæsthesias predominantly to that side of the body from which the predominant element, be it right or left, is derived. Viscera median in origin give rise to pains and hyperæsthesias on both sides of the midline in states affecting both sides of the viscus, or if affected on one side on that side, near the midline, to which the half of the viscus in which the lesion is situated originally belonged. Viscera lateral and bilateral in origin and developing symmetrically give rise to pain on either or both sides, according to the situation of the lesions. Viscera illustrating these origins are: ureters, ovaries, testicles, etc.; ascending aorta and heart; trachea, œsophagus, intestine; uterus. W. M. Willoughby (Lancet, April 16, 1904).

PEMPHIGUS VULGARIS.

In cases of pemphigus a diplococcus can be isolated from the contents of the bullæ. This diplococcus, when injected intravenously into the rabbit, will cause death. A diplococcus removed from the blood of the rabbit and identical with that obtained from a case of pemphigus vulgaris, when injected into the pig *(Sus scrofa)* produces a pustular eruption in the latter animal, attended with mild constitutional disturbances. Arsenic is the main remedy to be relied upon in the treatment of pemphigus vulgaris. A. C. Eustis (American Medicine, April 16, 1904).

PENETRATING WOUNDS OF THE ABDOMEN.

In penetrating wounds of the abdomen there are absolutely no known symptoms which indicate injury to any of the viscera, except those in connection with the urinary tract, stomach, and occasionally the lower bowel. Except those relating to general shock, all symptoms following such wounds indicate either internal hæmorrhage or peritonitis. To wait for symptoms of perforation of the intestine means to wait until peritonitis has developed; therefore every bullet or stab wound which penetrates the abdominal cavity should be operated on at the earliest possible moment in order to anticipate the advent of peritonitis. No time should be wasted in attempting to demonstrate the presence or absence of intestinal perforation by such means as the rectal insufflation of gases or vapors, or the analysis of re-collected intraperitoneally injected air or liquids.

It is essential to systematically examine the entire gastro-intestinal canal in all cases, regardless of the point of entrance of the wounding body. Whenever the alimentary canal has been perforated, suitable drains (the author prefers the so-called cigarette drains) should be placed either through the operative incisions or counterincisions, as may appear best suited to the individual case. M. L. Harris (Annals of Surgery, March, 1904).

PERITONITIS, ENTEROSTOMY IN.

The obstruction of the intestine in diffuse peritonitis is the result of a combination of causes, the most important of which is suspension or paralysis of peristalsis, due to inhibition, to toxic paralysis, and to the paralysis of distension. Mechanical causes, such as infiltration of the bowel wall and light adhesions, in certain cases contribute to this paralysis. Pure mechanical obstruction due to adhesions is the result of chronic or local peritonitis of at least some days' duration. Enterostomy is indicated in addition to other operative measures in the graver forms of diffuse

peritonitis. Its greatest advantage is the drainage of the gases and decomposing contents of the bowel and the relief of paralysis of peristalsis. By enterostomy the surgeon obtains direct control over the intestine for lavage and for the introduction of stimulants, nourishment, fluid, and cathartics. For the relief of paralysis of peristalsis primary enterostomy is to be preferred to the secondary operation.

Enterostomy is best performed by the use of the Mixter tube. The cæcum is the most satisfactory part of the bowel for a primary enterostomy, and the jejunum is to be avoided. Spontaneous closure of the fistula may be expected when the cæcum is opened, if the opening is kept below the level of the parietal peritoneum.

By the systematic use of enterostomy in the graver forms of diffuse peritonitis the number of patients dying on the second, third, and fourth days after operation is reduced.

The symptoms of visible peristalsis and spasmodic pain in intestinal obstruction indicate a mechanical cause for the obstruction. The persistence of these symptoms, unrelieved by enemata and cathartics, is an indication for operation. Under these circumstances the cause of the obstruction should be removed if possible by operation. In advanced cases of obstruction of this form, enterostomy of the coil of intestine nearest above the obstruction should be done. R. B. Greenough (Boston Medical and Surgical Journal, May 19, 1904).

PNEUMONITIS, ACUTE: ETIOLOGY.

As a result of the numerous and varied researches of other observers it has been determined that the bronchi and lung under normal conditions are practically free from micro-organisms; that the secretions of the upper respiratory tract in both health and disease often harbor the bacteria commonly found in pneumonia, namely: the pneumococcus, the streptococcus, the staphylococcus, and the pneumobacillus; that the incitants of pneumonia may be carried to the lung by the lymph-channels, inducing an interstitial pleuro-pneumonitis; or by the blood-vessels, giving rise to secondary metastatic processes; or, as is usual, by the air-passages, inciting the various lesions of exudative pneumonitis, of which two main types, the broncho-pneumonic and the diffuse lobar, are recognized; and, finally, that the broncho-pneumonic lesions, whether arising in man or induced experimentally in animals, may be incited by a great variety of bacteria, most frequently by the pneumococcus or the streptococcus; whereas comparatively few species of bacteria give rise to diffuse lesions in animals, and in man practically but one species, the pneumococcus, ever attains the necessary specialization for the incitement of lobar pneumonia.

In the researches of others patchy or circumscribed lesions comparable to the broncho-pneumonia of man have been induced experimentally with comparatively little difficulty. Previous attempts to induce lobar lesions in animals, though successful in a few exceptional instances, have failed to determine the exact conditions under which the lesion develops and offers no reliable method of securing typical pneumonic processes.

By means of accurately controlled series of experiments which allowed of precise comparison, it was possible in the author's researches to determine the effect of increasing or diminishing

the virulence of the incitant, the pneumococcus, in systemically predisposed, in locally predisposed, and in both systemically and locally predisposed animals. These experiments show that the incitement of diffuse lesions in the normal rabbit is extremely uncertain, and only possible in the predisposed rabbit when both the general and local susceptibility are increased and when organisms of comparatively low virulence are used. Thus, and owing chiefly to the fact that the lung surface acts as a barrier to infection, the development of acute exudative pneumonitis offers an especially clear example of the nice balancing of the essential conditions determining infection. These conditions are, on the one hand, the specialization or virulence of the incitant, and, on the other hand, the animal susceptibility, both local and systemic. Organisms of low virulence induce evanescent bronchial reactions; more virulent organisms, by a local infection, give rise to the more typical broncho-pneumonic lesions; while organisms of still greater virulence, if confined to the lung, incite diffuse processes of the lobar type, but if not so confined and bacteræmic infection occurs, the lung lesions are less marked and of the broncho-pneumonic type. The extremely fine balance of these conditions essential to the formation of lobar lesions in normal as well as in predisposed animals is as yet for practical purposes beyond experimental control.

Finally, as a result of these systematic researches on normal and predisposed animals, an entirely new procedure was adopted: the preliminary immunization of the rabits, so that extremely virulent cultures of pneumococci can be used without giving rise to bacteræmic infection. The experiments with this procedure showed that diffuse exudative lesions comparable to the lobar pneumonia of man may be incited experimentally in the immunized rabbit; and that in securing this result there are but two chief variable factors, the virulence of the incitant and the immunization of the animal: both easily and accurately controlled by the routine technique of the modern laboratory. Augustus Wadsworth (American Journal of the Medical Sciences, May, 1904).

PREGNANCY, CENTRAL PARALYSES OF.

Paralysis during pregnancy of an hysterical nature is less frequent than generally assumed; in most cases R. von Hosslin (Münchener medicinische Wochenschrift, March 8, 1904) found a definite organic basis. Genuine apoplexy is not uncommon immediately before, during, and after parturition, and is ascribed to hypertrophy of the heart, increased resistance in the vessels of the lower extremity, and toxic influences which alter the vessel walls. As a rule, the hæmorrhage is very large and involves the central ganglia, lateral ventricles, and internal capsules, so that the prognosis is very doubtful. The onset is sudden, with coma, hemiplegia, and paralysis of the facial and hypoglossal nerves. Another form of paralysis depends upon nephritis and is a manifestation of uræmia; it generally occurs in primiparæ of advanced years and depends upon a circumscribed œdema of the brain or upon hæmorrhage. Prodromal symptoms, such as headache, nausea, vomiting, with or without œdema, and albuminuria are common and the paralysis generally sets in after one or more eclamptic seizures. On account of the deep coma the paralysis is often overlooked, but may

manifest itself as hemiplegia, monoplegia, hemianopsia, or amaurosis; when dependent on œdema it is often transient, though the patient may still die after considerable improvement has set in. These cases are often wrongly looked upon as hysterical, since of such short duration. A large percentage of paralyses depends upon thrombosis of the cerebral vessels, owing to puerperal infection or severe metrorrhagia after birth or miscarriage. The onset is very gradual, consciousness is generally preserved, and rapid improvement may follow. Convulsions frequently accompany the paralytic stroke, which is hemiplegic in type. The cause of cerebral embolism may rarely be a thrombus which is carried from a pelvic inflammation or a phlegmasia alba dolens through an open foramen ovale into the cerebral circulation; in most cases, however, it is an ulcerous endocarditis during the puerperium. It is common for old valvular lesions to recur during pregnancy, but endocarditis may also develop during this time very insidiously, with palpitation, dyspnœa, and a blowing, systolic murmur at the apex. The onset and course of the paralysis are similar to that depending on thrombosis.

Rare conditions which cause paralysis are cerebral tumors, puerperal encephalitis, metastatic cerebral abscess after puerperal fever, and progressive paralysis. Spinal lesions are of less importance, since most have already existed before and are hardly influenced by pregnancy. There is a distinct connection, however, between the latter and traumatic paraplegia and compression myelitis, and occasionally a severe paraplegia will set in after copious hæmorrhage. Less frequent conditions are meningomyelitis, spinal apoplexy, encephalomyelitis, acute and subacute poliomyelitis, multiple sclerosis, and a chronic form of myelitis running the course of a spastic paraplegia; it is without doubt that any one of these diseases may develop during pregnancy in hitherto healthy women, so that the cause must be ascribed to some autointoxication. Both animal experiments and clinical experiences show that conception is not impossible, when severe cerebral or spinal lesions are present. With cerebral disease, pregnancy usually runs its normal course if the life of the mother is not destroyed; with spinal disease, the patient is often unconscious of her condition, and pregnancy may be interrupted when the disease sets in suddenly. Even parturition is hardly affected by cerebral paralysis, and in the spinal forms the labor pains are usually of normal intensity. In many cases the delivery is easier and more rapid than in normal individuals. (Medical News, May 21, 1904.)

PROSTATIC HYPERTROPHY, CHOICE OF OPERATION FOR.

Of a number of operations all having the same object in view, that one is to be preferred, other things being equal, which accomplishes the object as completely as any other with the least destruction of tissues involved and with the greatest safety to the patient.

There can be no doubt but that the above ends are best attained by the perineal operations when done in accordance with their best technique. It is consequently the method of choice. This is not to say, however, that it is the only operation which should be used. On the contrary, both the suprapubic and the Bottini have well-defined places. The former is the operation to be preferred in cases in which a

very large middle lobe makes the perineal operations especially difficult. The Bottini operation is to be preferred to either of the others if the patient's condition is such as to expose him to the danger of shock or postoperative pulmonary complications; and, finally, if one or another of the limitations to the performance of the Bottini operation is present, or there is too grave a general condition of the patient to warrant the employment of the Bottini, and if something must be done to relieve him, a palliative operation for drainage should be performed. The nature of the local conditions should be determined beforehand by means of the cystoscope. F. S. Watson (Boston Medical and Surgical Journal, April 28, 1904).

PUERPERA, THE.

The writer believes that many of the ills to which women are heirs have their origin in the puerperium. The anatomical foundations for these many troubles are: general muscular weakness, abdominal distension and visceral ptosis, and uterine displacements. The author recommends that the general management of the puerperal woman should be somewhat as follows: The patient should be instructed to lie on her side or on her face and not on her back. After the fundus has descended to the pelvic brim it is advisable in many cases to use tampons, in order to keep the cervix elevated. General massage should be begun about the second day after delivery, and massage of the abdomen should receive special attention as involution progresses. About the fourth day passive movements are begun. The woman should be got out of bed as soon as possible, about the ninth day, and should be instructed to wear a special corset for the support of the lower abdomen. A. E. Gallant (American Medicine, May 14, 1904).

PULMONARY TUBERCULOSIS, THE BLOOD IN.

The blood-picture in pulmonary tuberculosis is not constant and the conditions described by Grawitz (Deutsche medicinische Wochenschrift, No. 51, page 1372, 1893) are by no means absolute. There are cases in each of the three stages of the disease that are quite out of the limits of cellular and hæmoglobin contents described by him.

Omitting the exceptional cases from consideration, however, the average case in the first stage of the disease presents a slightly reduced number of erythrocytes, a moderate reduction of the hæmoglobin, and about a normal number of leucocytes. The average case in the second stage presents a varying degree of leucocytosis, due to an increase in the number of polymorphonuclear neutrophile cells. The erythrocytes are present in about normal numbers, and the hæmoglobin is often of normal percentage. The average case in the third stage will show a reduction in the number of erythrocytes, a moderate leucocytosis, composed of the polymorphonuclear neutrophile cells, and a high hæmoglobin percentage.

Hæmorrhage is usually followed by a marked reduction in hæmoglobin and a slight reduction in the number of erythrocytes. Leucocytosis is not an invariable feature of a posthæmorrhagic blood. Albuminuria, of itself, appears to cause no constant change in the blood-picture. Tuberculous diarrhœa is apparently attended by a reduction of the number of the erythrocytes and of the percentage of the hæmoglobin and by an increase of the leucocytes. The latter is due to the polymorphonuclear

neutrophile cells. Pleurisy is usually accompanied by a polymorphonuclear neutrophile leucocytosis.

There is no distinctive blood-picture that will serve to differentiate between extensive cavity formation due to tuberculous degeneration and that due to other causes. The leucocytosis occurring in the course of pulmonary tuberculosis is due to an increase of polymorphonuclear elements, and not to an increase of the lymphocytes or of the transitional cells.

The absence of the eosinophile cells from the blood may be looked upon as an unfavorable prognostic sign. The increase of these cells while the patient is under treatment may be taken as an indication that the progress of the disease has a tendency to become arrested. J. M. Swan (St. Louis Medical and Surgical Journal, May, 1904).

RADIANT ENERGY IN MEDICINE.

The legal as well as scientific status of the Röntgen rays in British dominions has recently been sharply tested in the Dublin law courts. A juvenile native of Galway, the site of the western limb of the Royal University, was admitted into the city infirmary with a damaged knee into which there was a suspicion that a needle had penetrated. On that account Professor Colohan, under whose care the lad had been placed, sent the latter to the physical laboratory in order to have the ailing joint questioned by the x-rays. The experiment was carried out by the laboratory assistant, who was conversant with the management of all the machinery, and who had sometimes taken x-ray photographs before. A solution of continuity of the cutaneous surface developed in time. The patient was sent to Dublin, and the hospital surgeon consulted sent him to a photographer, to have the limb again questioned. The latter, on seeing the "sore," at once said that it was an "x-ray burn." Neither of the photographers was, of course, connected with the profession of medicine or surgery. But the expression of the opinion just mentioned proved to be the germ of one of the heaviest suits which have for many years been tried in the Dublin courts, as it is the first in which the legal and medical professional responsibilities and limitations of x-ray photography have there been publicly investigated. Three actions were brought—against the physician, the laboratory assistant, and the college authorities, respectively. A small cicatrix was all that remained to show the existence of a lesion which the plaintiff's guardians would fain have charged to culpable and injurious negligence. We are very much pleased to be able to add that the jury did not accept this mischievous view, and exonerated the defendants from all blame.

Developing simultaneously with such suspicions and incriminations, we have hopeful reports and prognostics regarding the possible and even probable if not actual effects of the x-rays (and their congeners) on the great opprobria of our profession—tuberculosis, carcinoma, and sarcoma. Very definite results have already been attained by the employment of the filtered rays of Finsen against the hideous plague of lupus. The advantages obtained by application of x-rays to organs invaded by carcinoma or sarcoma must still be regarded as *sub judice;* but even the skeptical must allow that the general impression left on the collective professional mind is decidedly encouraging. If the career of the *Bacillus tuberculosis* has been permanently arrested in a given patch

of facial lupus, may we not easily be justified in hoping that we may at an early date be able to use such agency in blighting its growth within a pulmonary tubercle? And, while the experience of the conflict between other rays and other diseases still retains us in suspense, we have almost annual revelations of wave energy and radiant energy of which there are good grounds for hoping for final success in this field. For the discoveries of the past few years have decidedly tended to show that the views of Democritus and Epicurus on the nature of atoms and molecules were at least as near the truth as those of the leaders of physical science in the nineteenth century; that the dreamy lucubrations of mediæval alchemists contained a larger proportion of prophetic truth than the advanced materialist of the past decade has been able to conceive—or, at least, to admit; that the idea of the oldest of ancient Greece's "wise men"—of the origin of all existing varieties of matter from a single element—was not quite so silly as the average smart undergraduate has been prone to believe; and that the tendency of the most recent discoveries is to reduce the structure of all chemical elements and compounds to the constituents of the all-pervading ether—with or without the mechanism of Cartesian vortices.

Turn in what direction we may, we find that the invisible and inaudible vibrations of the mysterious ether are now agitating the intellectual media of all the representative communities of civilization. Radioactivity is undoubtedly the engrossing scientific topic of the present hour. "Radiations" pervade the heavens above, they penetrate the earth beneath, and they permeate the waters under the earth. As Professor Duncan not long since expressed it, "space is all aquiver with waves of radiant energy, ranging in length from many feet to a size infinitesimally small. To only a few of these are our bodily senses fitted to correspond or our mechanisms to detect. Waves of radiant energy constitute what has been called 'the harp of life.' We vibrate in sympathy with a few strings here and there —with the x-rays, actinic waves, light waves, heat waves, in the treble; and the huge electromagnetic waves of Hertz and Marconi, and the grand air waves of sound, in the bass; but there are great spaces, numberless strings, an infinity of possible radiations, to which we are deaf."

The wave of newly illuminated thought and research which was suddenly called into existence by the discovery of the Röntgen rays may be said to have led in its diffusion to our knowledge of the Becquerel radiation. The metallic element uranium and its compounds have long provided a specially fruitful field in the department of physical optics, and Professor Becquerel, in the course of experimentation, unexpectedly made the discovery that the double sulphate of this metal and potassium affected a photographic plate through a fold of black paper and an aluminum plate; and, further, that its proximity caused the immediate discharge of a gold leaf electroscope. At nearly the same date M. Niewenglowski obtained a corresponding photographic impression from calcium sulphide, and M. Troost from hexagonal blende. In 1898 M. Schmidt and Mme. Curie, independently, observed that thorium possessed analogous properties. The further researches of the latter revealed the fact that there were certain minerals more active than any of the above-

named agents. The special interest in this department was soon concentrated on pitchblende. From this mineral they separated an "active bismuth," possibly a new element, to which the name *polonium* was given, in honor of Mme. Curie, who is Polish by birth. Next came, from the same source, an "active barium," which was found to contain a new element, the now celebrated *radium*. The properties and powers of this latter appear to justify the almost unlimited hopes which are now entertained of the uses to which it may be applied in the near future. It is self-luminous, and is, accordingly, able to take its own photograph; its very proximity determines various chemical reactions; it converts oxygen into ozone, changes yellow phosphorus into red, colors glass, ionizes gases and even liquids, such as petroleum and liquid air, and insulates solid bodies, such as paraffin, simultaneously developing in the latter substance a residual conductivity which lasts for a long time after the direct influence of the radium has been removed. And the occurrence of burns produced by the proximity of this element was soon announced, analogous to, but much more penetrating than, those produced by the Röntgen rays, of which we have recently been hearing so much. Necessarily, then, its effects on carcinomatous and sarcomatous growths are more pronounced than those of the Röntgen rays. And these effects—one and all—result, we are told, from corpuscular discharges, which are shot off by the radium into all surrounding forms of matter. The cannonade of those corpuscles, we are led to believe, breaks up the constituent molecules, and even atoms, of the various growths exposed to them. Having such powers placed by scientific research in skilled hands, what beneficial results may we not hope to attain if by due discipline we can concentrate them in the proper directions? Editorial (New York Medical Journal and Philadelphia Medical Journal, May 28, 1904).

REFLEXES AND SENSORY PHENOMENA AND THE CONDITION OF THE EYEGROUNDS.

Of young men in health it may be said that the knee-jerks vary greatly in their range and rapidity, often being difficult to elicit. The Achilles jerk is constantly present, varies much less than does the knee-jerk, and is seldom difficult to elicit. The conjunctival reflex is extremely variable, being absent or faintly present in half of the cases. The same may be said of the pharyngeal reflex. The pupils are equal and vary greatly in size, ranging from 2 millimeters to 4.5 millimeters and averaging 2.76 millimeters in the light. The pupillary light reflex varies greatly, the range of the excursion being from scant 0.5 millimeter to 3 millimeters and the average 1.39 millimeters.

In the accommodation reflex the range of the pupillary excursion also varies greatly and is occasionally absent, the average range being 0.967 millimeter. Convergence is more or less defective in fully half of the cases. The eyegrounds exhibit more or less deep or extensive cupping of the optic nerve, with gray stippling in about one-eighth of the cases; and in a few of these the appearance is suggestive of beginning gray atrophy. The stereognostic appreciation is uniformly keen. The same may be said of the muscular and spacing senses. Theodore Diller (American Medicine, April 23, 1904).

SEA CLIMATE, THERAPEUTIC APPLICATION OF.

Sea climate is indicated when the vital processes are sluggish, but is distinctly contra-indicated when there is excessively active metabolism. This excludes subjects with pulmonary tuberculosis, as they are usually in the latter category. The stimulation of the sea air is particularly beneficial for anæmic subjects with sluggish vital processes; for lymphatic, scrofulous, and certain neurasthenic subjects with enfeebled nutrition. A small proportion of the tuberculous—about 8 per cent.—exhibit normal or torpid organic interchanges, and this small class may find the sea climate beneficial. It may also aid consumptives who eat, digest, and assimilate poorly notwithstanding excessive assimilation and disassimilation. Brief sojourn at the seashore may benefit such cases, as also those in which the general health is still good and the lung lesions are healing. Such patients should be sent to a mild, equable climate and instructed to avoid winds and the cool of evening, as also too brilliant sunlight, and to keep back from the immediate coast. The general and respiratory interchanges should be carefully examined from time to time and the patients sent away from the seashore if the findings become unfavorable. Tuberculosis of the bones and glands derives remarkable benefit from the sea air. The author's work establishes the action of sea air and bathing on the organic interchanges, and thus confirms what has been learned by clinical experience. A. Robin (Bulletin de l'Académie de Méd., vol. lxviii, No. 8).

SHOCK.

The writer reports experiments with alcohol, nitroglycerin, and amyl nitrite in shock, using the drugs by intravenous administration. With alcohol the first effect was a decline in the blood-pressure; in the majority of cases a compensatory rise followed, but in a number of instances this was lacking. In very few was there a rise in the blood-pressure. In animals reduced to varying degrees of surgical shock, the usual effect of an average dose of alcohol was still further depressing. In smaller doses little effect was noticed. In a few cases, in deep shock, a considerable dose was followed by almost immediate death. The more profound the shock, the more marked the depressing effect of the alcohol. In a number of experiments alcohol was given prior to the procedures intended to produce shock, but he is not sure that it rendered the animal more susceptible, though he is quite certain that the susceptibility was not diminished. The immediate effect of nitroglycerin and amyl nitrite on the pulse was an increase of volume and a decrease in frequency. Sometimes the respiration was slightly increased, but more frequently diminished. The blood-pressure in almost every instance fell, and usually rapidly. In a few exceptions there was no effect. A rise in the blood-pressure was rarely observed, and was then only temporary and usually followed by a fall. Compensation usually took place in a few minutes, the rising curve being more gradual than the fall. The portion of the curve representing the deepest part of the decline was rounded. In the majority of experiments compensation was complete. Where it was not equal to that before the administration of nitroglycerin, it was usually lower, and when repeated doses were given—each twice as large as the preceding one—the effects were proportionately increased. Most of the animals tolerated very large

repeated doses; excessive doses produced convulsions and respiratory failure, and the blood became darker before the animal died. Where the animal was in deep shock and the blood-pressure gradually falling, there was no evidence to show any decrease in the rapidity of the decline. As near as can be estimated, nitroglycerin distinctly increases it and amyl nitrite was in every respect similar in its effects to nitroglycerin. On the whole, nitroglycerin and amyl nitrite increase the shock. George Crile (Medical News, May 7, 1904).

TETANUS, PREVENTION OF.

The points which the author desires to emphasize in the prophylactic treatment of tetanus are the following: Early and thorough exposure of every portion of the tract which has been infected by the blank cartridge or instrument which caused the punctured wound, retracting the edges, so that the disinfection and removal of the infected tissues can be done under the guidance of the eye. Prophylactic injections of tetanus antitoxin to aid the organism in combating whatever toxins may have been absorbed prior to the time of operation.

This thorough disinfection can only be carried out under anæsthesia, either local or general, and when the parts are rendered bloodless by the application of a constrictor. The blank cartridge itself does not contain tetanus bacilli, but undoubtedly carries them in while penetrating the skin. The instruments which cause punctured wounds either are covered with tetanus bacilli or the manure of horses, etc., and are thus carried into the wound. D. N. Eisendrath (Journal of the American Medical Association, May 14, 1904).

THYROID GLAND IN MAN, TRANSPLANTATION OF.

The writer had the opportunity of experimenting with thyroid transplantation in three patients who were subjected to operations on the neck. He found that new thyroid glands could be produced in man by this process. The results were excellent when normal thyroid tissue is used, and are even successful when tissue is used that is slightly altered by pathological changes. The new glands thus obtained are practically normal. If markedly pathological thyroid tissue is used, the results are negative, the transplanted tissue being disintegrated and absorbed. From a clinical point of view, the transplantation is shown to be of great service in cases where the entire thyroid gland has been removed on account of disease, and also in cases of myxœdema due to deficiency in the thyroid gland. The chief difficulty, from a practical point of view, is in obtaining fresh human thyroid tissue for transplantation. This may be met in the future by devising some preservative medium, such as artificial serum or the blood-serum of certain animals. An open operation may possibly be avoided by devising a method of injecting an emulsion of the thyroid tissue into one of the body cavities. H. Cristiani (American Medicine; from La Semaine Médicale, March 16, 1904).

TISSUE-LYMPH CIRCULATION.

Tissue-lymph is intermittently effused, for example, after the ingestion of food, during exercise, rest after exercise, and during sleep. The rapid effusion and removal of it in states of rest suggest the probability of a circulation between the blood and the tissue-spaces—a circulation independent of

the lymphatic circulation. The apparent physiological intent of the effusion is reparative and that of its absorption is the removal of tissue-waste. The normal intermittency of the fluid exchange becomes in many pathological conditions less and less complete. By studying the conditions which increase or decrease lymph-effusion we ought to gain a clearer insight how to control derangements of nutrition and metabolism. George Oliver (Lancet, May 7, 1904).

TRYPANOSOMES, ANIMAL REACTIONS OF.

The trypanosomes found in *(a)* cerebro-spinal fluid of Uganda sleeping sickness cases, *(b)* cerebro-spinal fluid of Congo Free State sleeping sickness cases, *(c)* blood of Uganda trypanosome fever cases, and *(d)* blood of Congo Free State trypanosome fever cases are all identical in animal reactions and morphology with *Trypanosoma gambiense*. The specific name *gambiense* (Dutton) must therefore for the future include the trypanosomes from the above-mentioned sources. There seems to be no acquired immunity against infection. There is no transmission of immunity to offspring. An animal which seems to have recovered many months later shows parasites once more, apparently as the result of lowered vitality. H. W. Thomas and S. F. Linton (Lancet, May 14, 1904).

TUBERCULOSIS EPIDEMIC AMONG THE STREET SWEEPERS OF THE CITY OF NEW YORK.

The daily papers of the past week made the startling announcement that one-fifth, and according to some, one-third, of the street-cleaning force of New York had contracted tuberculosis. These statements were confirmed by the declaration of Commissioner Woodbury, who, as we all know, is a physician of large experience. It has been stated that five years' work as a street cleaner of New York makes the average individual a consumptive. When we consider that every employee in the street cleaning department must be carefully examined and found to be in perfect health before being admitted into the service, when we further consider that street cleaning is an outdoor occupation, and, finally, that in European cities, as, for example, in Berlin, the street sweepers show the smallest morbidity and mortality from tuberculosis and other diseases among that city's laboring population, the medical profession may well ask itself why conditions are so different in New York?

To the close observer it is not difficult to find an explanation. In well-regulated European cities the streets are frequently sprinkled before they are swept; here the sweeping is almost invariably done dry. Now, it is not the tubercle bacillus alone which renders our street cleaners consumptive, but it is the constant inhalation of all kinds of dust and the consequent irritation of the pulmonary surfaces, which make the invasion of the germ of tuberculosis more easy. The sweeping of streets in the dry state should be considered as a crime against our fellow-men. It is not the air, but the dust in the air, which renders New York such a dangerous place, particularly in summer, to people predisposed to pulmonary troubles. While, as a natural consequence of being in closer proximity to the dust, the street cleaners are the first to suffer, the citizens at large who are obliged to remain in New York during the summer months suffer also to a considerable degree. We are all apt to breathe the

irritating and infectious dust raised by sweeping, by gusts of wind, by street cars, and by automobiles. Those who wish to get an idea of the amount of dust in the atmosphere of New York on a dry day are advised to watch for a few moments in the vicinity of the Circle at Eighth Avenue and Fifty-ninth Street.

Something effectual should be done to stop this source of tuberculosis and other diseases of the respiratory organs in that metropolis. If street cleaning as it is done now renders the average employee consumptive within a few years, the sources of tuberculous infection are increased; furthermore, the majority of the street cleaners being of the poorer classes, they will become burdens to the community the moment they cease to be breadwinners. By a wise decision of the city authorities there is now an increased provision for water-supply to that city. This should be used immediately for extensive sprinkling of all the streets of New York. The few private sprinkling companies are in no way adequate to cope with the situation. Instead of forbidding individual house owners to use a hose for sprinkling purposes in front of their houses, though they may possess a water-meter, such a procedure should rather be encouraged. No street should be swept without being previously sprinkled, and the gutters in the streets should be flushed daily, except in freezing weather. To forbid people to spit altogether when outdoors is unreasonable, and any such law would not be carried out, but a law could be enforced which made spitting in the gutter permissible, but expectorating on the sidewalk and in the middle of the street punishable by a severe fine. Besides all these precautions, street cleaners could be provided with respiratory masks as an additional protection, particularly in very dusty localities.

To aid future prophylaxis it might be interesting to find out how many of the street cleaners that have become tuberculous are total abstainers, moderate or heavy drinkers, for there is no doubt in the author's mind that the excessive use of alcohol has rendered some of them more susceptible to the invasion of the tubercle bacillus.

New York is, however, face to face with another problem at this moment besides the prevention of the spread of tuberculosis among its street cleaners. In the examination of all the street cleaners, which has been instituted by order of the commission, a large number of the employees will be found tuberculous and in need of immediate treatment. What is going to be done with them? Our general hospitals are filled, and, even if we had accommodations in them, they are not places to treat consumptives. The facilities existing now in New York for the treatment of consumptives without means are extremely limited, and the few institutions devoted to the exclusive care of this disease are filled to overflowing. A proper place to treat those unfortunate street cleaners who have fallen victims to tuberculosis in the performance of their duty would be a municipal sanatorium. We have none, and it takes time to build one. Yet there should be no delay, and in view of the warm weather coming upon us a tent colony would now answer the purpose of a sanatorium very well indeed, and could be established in a week or two. There are enough suitable sites in the surrounding counties where such a colony could be established, and where, with good hygienic and dietetic treatment, under proper medical supervis-

ion, all the affected street cleaners could be taken care of and given the best possible chance for cure. No time should be lost in inaugurating the above-mentioned preventive measures or in the establishment of a municipal tent sanatorium for the consumptive street cleaners. S. A. Knopf (Editorial in New York Medical Journal and Philadelphia Medical Journal, May 14, 1904).

TYPHOID FEVER, NERVOUS COMPLICATIONS OF.

From early record typhoid fever has been recognized as having associated with it distinct nerve-lesions. The pathological findings which have been recorded appear to establish the fact that nervous symptoms may be due either to the toxin or the typhoid bacilli, while the pathological changes in the nerve-tissues are more often due to the direct action of the bacilli. No one symptom is more commonly present in typhoid fever than headache. Convulsions are a rare complication of the disease. They may be due to the action of the toxins upon the exhausted nerve-centers, they may follow thrombosis of the veins or cerebral arteries, or they may be due to nephritis. Delirium is one of the most frequent symptoms of typhoid fever. It may exist before any elevation of temperature occurs. Usually the more active the delirium, the more grave the danger. The diagnosis of meningitis in a disease so constantly characterized by functional cerebral derangement is complicated with much to confuse the attending physician. While the records of this complication are few, yet its existence is proved, and every case with cerebral symptoms should be carefully watched for its possible occurrence. Cerebral abscess following typhoid fever has been noted. Hemiplegia and aphasia are rare complications of typhoid fever. Neuritis occurs in a small number of cases. The most common form is probably that known as "tender toes." Paralysis in many forms is met during or after an attack of typhoid fever. Other sequelæ sometimes seen are "typhoid spine" and insanity. There is hardly a nerve symptom which may not be present with or follow an attack of typhoid fever. H. A. Black (American Medicine, April 5, 1904).

TYPHOID FEVER, PROGNOSIS OF.

The younger the patient, the more favorable the prognosis, as mild cases are commonest to the young, while fatal complications are apt to occur in the old. If the onset of the disease be gradual, it is likely to prove a mild case; but, if the onset be sudden, then a severe case must be looked for. If the case be one occurring in an outbreak of typhoid fever, then the general character of the outbreak may be of value in prognosis, the age and constitution of the patient being taken into account. The amount of pyrexia *per se* is not to be regarded as unfavorable in a patient of strong bodily health. The pulse-rate is a good indication of the severity of the attack. Sudden changes in its rate are important guides to the onset of complications.

Constipation is a favorable symptom contrasted with diarrhœa, which is unfavorable. Meteorism is an unfavorable symptom, because it favors perforation. Where perforation occurs, operative measures hold out the best chance. The dryness of the tongue is a valuable guide to prognosis. Hæmorrhage occurs chiefly in serious cases. The earlier it occurs in the disease, the more serious it is. Early nerve symptoms must be

regarded seriously, for they are an indication either of the severity of the attack or the lack of resistance in the patient. Most of the complications tend to recovery, serious complications being perforation, peritonitis, and pneumonia. When perforation occurs, laparotomy is the only treatment. Hospital-treated patients have a better chance of recovery than home-treated patients. R. E. Sedgwick (Birmingham Medical Review. February, 1904).

UPPER AIR-TRACT, VALUE OF TOPICAL APPLICATIONS TO THE.

The writer submits the following tentative summary of the value of topical applications to the upper air-tract: Insufflation of powders is not an efficient form of local medication of the upper air-tract. Inhalation of medicated steam is of service in the early stage of catarrhal inflammation—the higher the temperature and the saturation of the inhalation, the greater is its efficiency. Dry inhalation of the volatile parts of drugs is of little utility. Inhalation of smoke from a smudge of suitable medicaments will usually control a paroxysm of asthma, but finely nebulized oils suitably medicated are more elegant when equally efficient.

Gargles are of little value unless the patient be directed and trained to use them in a way to give the greatest possible access to the pharynx and naso-pharynx. They can be used occasionally as an efficient means to cleanse the naso-pharynx and nasal chambers.

Douches are used chiefly to apply cleansing alkaline solutions to the nasal passages and the naso-pharynx. Cleansing solutions are the most important topical applications in the upper air-tract. Much irritation is kept up by decomposed secretion retained mechanically in the various recesses of this region, and the douche is the most efficient means for its removal. Care must be taken that fluid be not used in this way in too large amount or with too much force, lest infection be carried to the middle ear.

Drugs used for other than cleansing purposes act chiefly either as irritants to the surface of the mucous membrane or by absorption into its tissues. Such medicaments are best applied as pigments or sprays. Both irritants and absorbents in the hands of the physician should be applied usually as pigments directly to the region which it is desired to affect. This is true even within the larynx and the trachea. In the trachea the medicament may be injected through the glottis directly upon the tracheal walls. Sprays should be reserved usually for use by the patient during the intervals between local treatment by the physician, if it be desired to keep up a continuous influence of a drug.

There is positive evidence of the prompt absorption by the mucous lining of the air-tract of certain active drugs—as cocaine, adrenalin, stramonium, and atropine. Experiments in regard to the relative absorbability of various drugs by this route are needed to establish a more certain and rational local therapeutics of the nose and throat.

It is not improbable that the massage attending the application of pigments to the mucous surface is an important factor in producing reactions in the circulation and in the glandular secretions.

While experimental knowledge is lacking of the local effects in the upper air-tract of drugs topically applied, local therapeutics remain inferior to surgery in accuracy of application and in efficiency in the treatment of most of

the chronic diseases of the nose, ear, and throat. F. W. Hinkel (Therapeutic Gazette, May 15, 1904).

URETERAL CATHETERISM AS A ROUTINE METHOD OF DIAGNOSIS IN RENAL DISEASE.

The advantages of catheterism over the other methods may be expressed as follows: The cystoscope is more easy of introduction than are the separators or segregators, is less painful during the bladder manipulations, and much less so during the collection of the urines. Hence, as a rule, with ureteral catheterism the urines can be collected during as long a time as may be thought necessary, the patient not requiring any supervision. A cystoscopic examination of the bladder can be made at the same time, which, in some cases, is useful, in others, indispensable. Much more exact results may be obtained, especially when the two urines are of a similar character, whether clear, bloody, or purulent (Albarran); and it is the only method by which there is a fair certainty that there is no bladder contamination. John Van der Poel (New York Medical Journal and Philadelphia Medical Journal, April 16, 1904).

UTERINE FIBROMYOMATA, COMPLICATIONS AND DEGENERATIONS OF.

Fibroids which are producing symptoms, and all fibroids except those designated as small (especially when subserous or intramural), should be removed, because the risk to the patient from operation is far less than that from the tumors themselves.

In view of the sarcomatous changes, carcinomatous associations and complications of uterine fibromyomata, early removal is indicated when they are of sufficient size to produce symptoms. Small, uncomplicated tumors not producing symptoms do not require early treatment.

Thorough pathological examination should be made of all fibroids for evidence of malignancy. Particular study should be devoted to those tumors which are necrotic, cystic, or both, as among these are found the largest proportion of malignant changes. Ellice McDonald (Journal of the American Medical Association, May 21, 1904).

UTERUS, BACKWARD DISPLACEMENT OF THE.

Backward displacement of the uterus frequently gives rise to no symptoms, and requires no treatment. These are usually cases of "simple" displacement. Where symptoms are caused by it, complications are usually present, which may be either "consecutive" or "independent." Before adopting local treatment the possibility of the symptoms being hysterical should be carefully considered. Pessaries should only be adopted as a temporary measure or in "simple" cases; they rarely effect a cure. Local depletion is a valuable adjunct to treatment by pessaries. Cases unsuitable for treatment by pessaries, and cases in which pessaries have failed to cure, should be advised to undergo ventrofixation. T. W. Eden (Practitioner, May, 1904).

VOLVULUS OF THE STOMACH.

The occurrence of volvulus of the stomach is a possibility beyond the shadow of a doubt; it remains, therefore, for physicians to bear this condition in mind when making a differential diagnosis between pyloric obstruction, occlusion of the bowels, poisoning, cyclical vomiting, cholelithiasis, peritonitis, etc.; for surgeons to be ready to operate when

necessary and not to forget to empty the stomach of its contents. Volvulus of the stomach occurs in all ages and in both sexes. Digestive disorders may be considered as etiological factors. From a pathological standpoint volvulus of the stomach may be divided into *(a)* that due to organic changes produced by adhesions, and *(b)* that in which no visible organic changes have taken place.

The characteristic symptoms of volvulus are sudden onset; distension, which commences in the left hypochondriac region, and which gradually increase in size; a tumor, which gives on percussion a tympanitic sound; vomiting or regurgitation immediately following ingestion of food or drink; no belching; no escape of flatus; inability to pass a sound into the stomach. When the condition is recognized, early operative interference is indicated, and recovery is almost certain. C. D. Spivak (Denver Medical Times, April, 1904).

WATER, BACTERIAL EXAMINATION OF.

There is a difference between the bacillus acidi lactici of Hoeppe and the colon bacillus. Presumptive tests, although of unquestionable value as primary procedures, and serviceable for prolonged routine test of a supply, where the analyst is familiar with all conditions and can ascertain at a glance any variable feature, must not be relied upon in arriving at a positive definite diagnosis of the colon bacillus. The colon bacillus cannot be constantly detected in cubic-centimeter amounts of water from the same source, although it may be heavily polluted with sewage. The presence of colon bacilli in 50 per cent. of cubic-centimeter amounts of water is strongly indicative of sewage pollution. The ordinary cultivation of farm lands, although it may be the source of some colon bacilli to a water-supply, does not seem to play any great rôle as such, and this source need hardly be considered when the majority of 1-cubic-centimeter samples reveal the organism. Agitation has little or no destructive influence upon colon bacilli in water, and light appears to exert a destructive influence. The positive detection of the presence of true colon bacilli in waters not presumably receiving sewage is rare. It is possible there have been organisms mistaken for colon bacilli, probably through too great reliance upon presumptive tests. W. G. Bissell (American Journal of the Medical Sciences, May, 1904).

WHOOPING-COUGH, ETIOLOGY OF.

It has long been assumed that whooping-cough is an infectious disease, although the etiological factor has not yet been positively determined. Many careful observations have shown that the disease may be communicated from one person to another, and that it may be carried in the sputum from the sick by a third person. It is also well known that one attack confers a certain degree of immunity, a second attack in the same person being only rarely observed. Investigations to determine the etiological factor have not been wanting, but the results reported are of a very heterogeneous character. Some of the earlier investigators described a protozoön, but of late these observations have been discredited. Various cocci have also been regarded as the cause of whooping-cough, but this view has also been discarded. More recently a number of small bacilli closely resembling the influenza bacillus have been described by several investigators, but there is no close agreement among the reports of the different observers.

Czaplewski and Hensel were among the first who described in detail a bacillus which closely resembles the influenza bacillus, and which they believe to be the cause of whooping-cough. They found this organism in all of 44 cases of pertussis which they examined, in 5 cases of bronchitis which later developed pertussis, and in a case of rhinitis which affected one of the investigators during the progress of this work. The organism is nonmotile, and grows on all ordinary culture media except potato. It stains well with ordinary aniline dyes, and young cultures on artificial media retain the stain by Gram's method. The staining with the aniline dyes is not uniform, but more intense at the ends than near the middle of the bacillus: a circumstance which may easily lead to this organism being mistaken for a diplococcus. On Loeffler's blood-serum it forms small, nearly colorless, transparent, sometimes grayish, colonies, which seldom acquire a diameter of more than 1 millimeter. About the same time that this work appeared Koplik described a very similar organism which he found in 13 of 16 cases examined. In 1901 Jochmann and Krause examined the sputum of 31 cases of pertussis, and in 25 of these found a bacillus which resembles the influenza bacillus. Eighteen of these organisms were different from the others, in that they do not grow on ordinary media, but grow on media containing hæmoglobin. They believe that this organism may be the cause of whooping-cough, and that the one described by Czaplewski and Hensel is identical with one of their other bacilli, which grows on ordinary media, and to which they assign no special importance. Manicatide (Zeitschrift für Hygiene, December 29, 1903) recently reported a series of 82 cases, in 67 of which he found a small bacillus resembling the bacillus of influenza. This organism is 0.5 meter long and about one-half as thick, and differs from that described by Czaplewski, in that it grows on potato and does not show the polar staining. It grows on all ordinary media, and its bouillon cultures are agglutinated by the serum from patients affected with whooping-cough. Manicatide immunized two sheep and two horses against this organism, and used the immune serum in the treatment of 89 cases of pertussis with favorable results. The paroxysms are said to have been less severe and less frequent after the first injection, and a number of cases were cured in from one to twenty days after the beginning of the treatment.

It is evident that there is a lack of uniformity in the observations thus far reported, and that more work must be done before we can speak of a specific bacillus of pertussis, as has been done by Jochmann. The mere fact that an organism is found, together with other bacteria, in the sputum of a large percentage of cases does not prove that it is the etiological factor of the disease. In all of these investigations streptococci were found nearly as often as the so-called bacillus of pertussis, but no one regarded them as the cause of whooping-cough. In regard to the agglutination test, we know that it is not always specific, as is shown by the fact that a colon bacillus may be agglutinated by dysentery immune serum, and typhoid bacilli may be agglutinated by the serum of patients suffering from jaundice. As whooping-cough is a self-limited disease, the cures reported by Manicatide cannot be accepted as proof that the organism which he injected

into the immunized animals is the cause of whooping-cough. More extended observations are necessary, and, until this work has been confirmed by others, the question of the etiology of whooping-cough must be regarded as unsettled. Editorial (Journal of the American Medical Association, May 21, 1904).

Books and Monographs Received.

The editor begs to acknowledge, with thanks, the receipt of the following books and monographs:—

Manual of Materia Medica and Pharmacy. Specially Designed for the Use of Practitioners and Medical, Pharmaceutical, Dental, and Veterinary Students. By E. Stanton Muir. Ph.G., V.M.D., Instructor in Comparative Materia Medica and Pharmacy in the University of Pennsylvania. Third Edition, Revised and Enlarged. Crown Octavo, 192 pages, Interleaved Throughout. Bound in Extra Cloth, $2.00, net. F. A. Davis Company, Publishers, 1914-16 Cherry Street, Philadelphia, Pa.

The Fourteenth Annual Report of the Eye, Ear, Nose, and Throat Hospital of New Orleans, La. 1903.——The Relation of the Chemistry of the Saliva (Sialo-semeiology) and Nasal Secretions to Diseases of the Mucous Membrane of the Mouth and Upper Respiratory Tract. By D. Braden Kyle, Philadelphia. 1904.——The Chemic Pathology of the Saliva and Pharyngeal Secretions (Sialo-semeiology) as a Means of Diagnosis. By D. Braden Kyle, Philadelphia, 1902.——The Import of the Salivary and Nasal Secretions in Hay Fever. By D. Braden Kyle, Philadelphia. 1903.——The Septic Infections. By G. E. Malsbary, Cincinnati. ——Pneumatic Massage in Aural Practice. By Edwin Pynchon, Chicago, Ill. 1902.——Nosophen and Antinosine in the Treatment of Diseases of the Nose, Throat, and Ear. By Edwin Pynchon, Chicago, Ill. 1900.——The Principles of Rhinologic Practice. By Edwin Pynchon, Chicago, Ill. 1903.——The Attic of the Nose. By Edwin Pynchon, Chicago, Ill. 1901.——The Conservative Energy of the Individual. By Henry B. Stehman, Pasadena, Cal. 1903.——A Method of Rapid Extirpation of Naso-pharyngeal Fibromata, with Report of Cases. By Gordon King, New Orleans, La. 1903.——Some Observations of the Treatment of Accessory Sinus Disease. By Gordon King, New Orleans, La. 1904.——The Practical Application of Cryoscopy to Medicine. By H. W. Cattell, Philadelphia. 1904.——Table Wines. Are Their Uses to be Encouraged? By Henry O. Marcy, Boston, Mass. 1903.——Report of Five Cases of Pulmonary Tuberculosis Apparently Cured. By Daniel Luce, Hartwick, N. Y. 1904. ——The Relation of Typhoid Fever to Tuberculosis. By J. M. Anders, Philadelphia. 1904.——The Efficiency of Local Treatment as a Factor in the Cure of Laryngeal Tuberculosis. By Ross Hall Skillern, Philadelphia. 1904.——House Infection of Tuberculosis. By L. F. Flick, Philadelphia. 1904.——A Method of Destroying or Preventing the Growth of Algæ and Certain Pathogenic Bacteria in Water Supplies. By G. T. Moore and K. F. Kellerman. United States Department of Agriculture, Washington, D. C. 1904.——Paris-Green-Spraying Experiments. By J. K. Haywood. United States Department of Agriculture, Washington, D. C. 1904.—— The Fat Testing of Cream by the Babcock Method. By E. H. Webster. United States Department of Agriculture, Washington, D. C. 1904.——Progress of the Beet-sugar Industry in the United States in 1903. United States Department of Agriculture, Washington, D. C. 1904. ——Alfalfa Seed. By Edgar Brown. United States Department of Agriculture, Washington, D. C. 1904.——Fruit Trees Frozen in 1904. By M. B. Waite. United States Department of Agriculture, Washington, D. C. 1904.——Some Miscellaneous Results of the Work of the Division of Entomology. VII. United States Department of Agriculture, Washington, D. C. 1904.——An Enemy of the Cotton Boll Weevil. By O. F. Cook. United States Department of Agriculture, Washington, D. C. 1904.——Usefulness of the American Toad. By A. H. Kirkland. United States Department of Agriculture, Washington, D. C. 1904.——Experiment Station Work. XXV. United States Department of Agriculture, Washington, D. C. 1904.

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"DIGITALIS IN HEART DISEASE."

In an editorial the *Medical News* of June 18, 1904, refers to the discussion of the above subject at the recent meeting of the American Medical Association as follows: "Notwithstanding the elaborate and painstaking studies of the physiological effects of digitalis that have been made, there is still no little doubt as to the exact indications which the drug can be expected to fulfill. The discussion of this subject at the meeting of the American Medical Association, in the Section on Medicine, shows that there is at least a fairly definite agreement among prominent clinicians as to certain contra-indications and some conclusive observations

as to what type of heart disease it will benefit. It is unfortunate that to many physicians the word heart disease at once brings up the suggestion of the administration of digitalis. As a consequence of this false therapeutic *nexus* the assertion made during the discussion at Atlantic City that digitalis has probably done more harm than good, because of this lamentable tendency to use it in all cases of heart disease, once compensation is broken, would seem to have a certain amount of justification.

"There is no doubt that digitalis employed in mitral regurgitation with symptoms of loss of compensation is often an extremely helpful and always a very satisfactory drug. On the other hand, anyone who has seen the uncomfortable effects produced by digitalis in cases of aortic regurgitation, in young persons with hypertrophy of the left ventricle, especially where patients are still able and are allowed to be around on their feeet, will realize how much harm may be done by its use in heart disease without proper selection of cases. It may be said at once that, to suggest its use simply because there is a murmur present and because perhaps the patient is nervous as the result of having recently been informed by an insurance examiner or after some chance examination of the heart for some other reason that he has heart disease, is almost sure to be harmful.

"The typical cases in which digitalis does good, according to the consensus of those who took part in the discussion at Atlantic City, are those suffering from chronic mitral endocarditis due to rheumatism. In these cases, if both the aortic and the mitral valves have become affected, as sometimes happens, then digitalis does good notwithstanding the fact that in simple aortic regurgitation it is usually contra-indicated. These cases, however, are seen typically in young persons, before there is any degeneration of arteries. Whenever there are sclerotic changes present in the arteries, as is typically the case in most instances when aortic disease develops, then digitalis is always contra-indicated.

"In stenotic conditions at the various valves digitalis would seem to be nearly always a dangerous drug. With regard to mild amounts of stenosis at the mitral valve there may be some doubt in the application of this as a general rule. In aortic stenosis, however, there can be no doubt, as the increased action of the left ventricle produced by digitalis when exerted in the direction of the already blocked path, through which all the blood in the body must pass about twice a minute, is sure to produce overdistension of the cavity with degenerative changes in the muscular fibers and dilatation rather than compensatory hypertrophy of the heart. When there is a considerable amount of stenosis of the mitral valves the same thing would seem to be true, since the auricular fibers are much less capable of hypertrophy for the purpose of overcoming the resistance that the blood-stream encounters at this orifice. Some stenosis, here, however, probably exists with every regurgitation, and the indications are not so absolute.

"In general it may be said, however, that the most important factor in any successful therapeutics of heart disease, whether it be by the use of digitalis or any other remedy, must always be considered to be absolute rest for the patient. It would seem especially unfortunate to use digitalis freely at times when patients are around on their feet and using practically all the strength they have when they should be resting quietly in bed and giving their hearts the indispensable opportu-

nity to recuperate after the strain and the overwork which have caused the break in their compensation. It is the neglect of this precaution that, especially in the early and often quite tractable forms of mitral heart disease, is the true cause for complaints on the part of physicians of the failure of digitalis to give relief. There is another cause in the neglect of proper regulation of diet and due attention to intestinal evacuation, which must be the first step in any treatment of heart conditions."

Commentary.—The assertion that to most physicians the words "heart disease" mean digitalis, and that, as a consequence, this very valuable drug has probably done more harm than good, is—at least in a great measure—unfortunately true. Yet, can this lamentable state of things be equitably laid at the door of the practicing physician? Notwithstanding the painstaking investigations in the experimental study of digitalis, during the last forty years, can its physiological action be said to have been elucidated sufficiently to give the practitioner even an approximate idea of its *mode* of action? Can we even say that the functions of the heart itself are sufficiently understood by physiologists to furnish therapeutists a foundation for sound deductions?

The two predominating factors of the problem emphasized by investigators are (1) the influence of digitalis upon the cardio-inhibitory system, (2) its power to raise the blood-pressure and increase the energy of the heart's contractions.

The influence of digitalis on the inhibitory mechanism is undoubted. Boehm found, for instance, that arrest of the heart in diastole—which is typical of inhibitory arrest—was never caused by this drug when the vagi had been cut. Yet when we ask the physiologist to tell us *how* the inhibition is brought about, he is unable to do so: "The question cannot fail to press itself upon the mind of anyone who has ever witnessed this most beautiful of physiological experiments," writes Stewart,[1] "but as yet there is no answer except ingenious speculations." Langley,[2] whose competence in such questions is so great, gives a still darker picture of the situation when he says: "We are still far from any real knowledge of the processes involved in inhibition." A number of investigators, including Arnold and H. C. Wood, Jr.,[3] however, have contended that, while the inhibitory mechanism was stimulated by the drug, it was the peripheral portion of this mechanism that was mainly influenced. Even the workings of this restricted portion of the inhibitory apparatus have not been unraveled. Porter,[4] for example, says, in this connection: "The nature of the terminal apparatus by which the vagus inhibits the heart is unknown."

As to the increase of power with which digitalis is well known to endow the heart, the prevailing views are practically as weak, although the effect witnessed is

[1] "Manual of Physiology," fourth edition, 1900.
[2] "Schafer's" Text-book of Physiology," volume ii, 1900.
[3] American Journal of the Medical Sciences, August, 1900.
[4] "American Text-book of Physiology," volume i, second edition, page 147, 1900.

ascribed to a tangible factor, the drug itself. Here, however, a crop of physiological discrepancies appears. German physiologists are almost unanimous in declaring that the action of digitalis is exercised upon the left heart. The followers of Germain Sée, a clinician, hold that its action is greater on the right than on the left, while another school, led by François-Franck, a physiologist, teaches that it acts equally on both sides. Again, all clinicians know that, as emphasized by Huchard, the effects of digitalis may persist eight, fifteen, and even thirty days after discontinuing its administration. Its cumulative effects are also well known. Can we consistently admit that enough of the drug can accumulate in the blood to maintain its physiological action two weeks or a month without provoking cumulative effects? The doctrine that digitalis acts directly on the heart is based upon experiments with the isolated heart. But, as shown by Masi, this action is greatly influenced by temperature, the heart remaining under certain conditions in systole and under others in diastole. "The value of such investigations we think is much overestimated," write Arnold and H. C. Wood, Jr.,[5] and "it is a mistake to draw too positive conclusions concerning their action [they refer to digitalis and its various principles] on the human economy from such evidence." Perfusion experiments have proven as contradictory, some observers having found that digitalin contracts muscular elements, others that it dilates them. As to the view that digitalis acts upon the nervous elements, Kobert[6] obtained a constricting action on tissues the nerve-terminals of which had been paralyzed by cold or decomposition.

This evidence—to which more could be added—shows, it seems to me, that the foundation of the prevailing doctrine concerning the physiological action of digitalis is, to say the least, unsound. Nor is it therefore of a character calculated to aid the practitioner. Dr. R. Cabot remarked during the discussion that "theory must count for little in the application of drugs for heart disease and that experience is everything." In truth, this applies to all drugs. What we do know of their practical value has unfortunately been acquired through the very kind of promiscuous bedside experience which it is the purpose of the editorial to deplore. We must not lose sight of the fact, however, that if practitioners are still forced to depend upon empirical methods to acquire their experience, it is because the physiological functions and relations of the various organs upon which the drug are intended to act are themselves obscure. When physiologists will have fulfilled their mission, physiological therapeutists will have no difficulty in fulfilling theirs, and the general practitioner will no longer have to bear the reproach that he has "probably done more harm than good" with any drug.

C. E. de M. Sajous.

[5] *Loc. cit.*

[6] Archiv für experimentelle Pathologie und Pharmacologie, bd. xxii, page 77, 1887.

Cyclopædia of Current Literature.

ARTERIOSCLEROSIS, PATHOLOGY OF.

In the cicatricial form of arteriosclerosis Dr. William Welch states that there seems to be a peculiar localization chiefly affecting the thoracic arch in its ascending portion, and has but little tendency to extend. It is characterized by changes in the adventitia and media, and also by scarlike depressions seen especially in the intima, and associated with this are elevated plaques. At present three anatomical distinct affections, which may occur separately, but more often combined, are as follows: (1) that form with inflammatory thickening of the intima resembling scar-tissue; (2) that form called by some a true arteriosclerosis, and which applies naturally to a thickening of the inner coat and a splitting of the internal elastic membrane, or the elastic muscular coat, and associated with necrotic, fatty, and hyaline degenerations; (3) that form due to syphilis or, as called by Keller and his students, syphilitic aortitis. He believes the most important underlying cause is the functional strain upon the arteries, and it is a matter of the greatest importance to learn what are the conditions associated with arteriosclerosis which are responsible for the rise of arterial pressure and cardiac hypertrophy.

Dr. W. S. Thayer referred to 62 autopsies in cases of typhoid fever in 19 of which definite sclerotic changes were made out and in 13 early and fresh sclerotic changes were noted, and this led him to believe that typhoid fever played some causal part in the thickening of the radial arteries. The histories of a large number of cases in Dr. Osler's wards, gone over consecutively, numbering 3894, were examined regarding the general presence of palpable radials in cases with histories of certain diseases. The results obtained and which were illustrated by charts showed where no causal factor existed a general percentage of 18.9; in cases of diphtheria a slightly lower percentage; pneumonia, with 19.6; malaria, 22.6; syphilis, 23; scarlet fever, 24; rheumatism, 41; alcoholism, 53.3; and heavy work, 62.2. The part played by physical labor in the production of arteriosclerosis appeared to be far greater than that played by alcohol.

The connection between arteriosclerosis and syphilis, if any, is believed by Dr. C. Travis Drennen to be obscure. The routine treatment adopted by the profession at large in the treatment of syphilis he believes is responsible for the production of arteriosclerosis, and the tendency of the disease itself is to produce sclerosis in various organs. He pleads for a more rational treatment of syphilis that will lessen the danger from mercury and iodides, and possibly may eliminate the agents used in the treatment of syphilis as causative factors in the production of arteriosclerosis.

Dr. George Dock states that it is doubtless true that in many cases the arterial disease causes the renal disease, and that it is of great clinical importance that the kidney lesion be very severe, yet latent. It is often seen how under the influence of an acute intoxication, as in acute infectious diseases, severe symptoms may suddenly develop

and quickly cause death, when advanced renal degeneration is discovered. It is generally accepted that a chronic nephritis, in a person with previously healthy blood-vessels, may cause arteriosclerosis by retention of injurious substances. The importance of hypertension in causing vascular disease is now well recognized. If there is hypertension in acute nephritis, it must be admitted that it may lead to disease of the intima, followed by compensatory, and later by degenerative, changes. Many cases of acute nephritis apparently severe, recover, and the writer thinks we must believe that when this occurs vascular sclerosis may follow. He wishes to assert the possibility of renal diseases of all kinds assisting in the production of arterial disease, and to plead for more extensive clinical investigation in order to show the extent and if possible the explanation.

Dr. Frank Billings states that lead readily gains an entrance into the body, and probably directly affects the blood and other tissues. It may act directly upon the cells of the vessel wall and produce a proliferative endarteritis. This is associated with degenerative processes and thickening of the media, and especially a degeneration with proliferation and thickening of the muscular coat. There is caused a chronic degeneration of the kidney substance, with well-known fibroid changes and hypertrophy of the muscular coat of the arteries. In a large number of cases brought to autopsy with nephritis a great proportion of them was associated with lead. Lead predisposes to gout, and it is a well-known fact that arteriosclerosis is common in gout.

In reviewing the literature on the subject, Dr. Richard Cabot found that the text-books all assert the importance of the excessive use of alcoholic liquors as a causative agent in the production of arteriosclerosis. In his investigation of 283 cases at the Massachusetts General Hospital, only 18, or 6 per cent., showed arterial sclerosis so far as could be ascertained by an examination of the heart and peripheral vessels. This investigation excluded syphilitics and those over 50 years of age; if those over 40 years of age were excluded the percentage would fall to less than $1\,^1/_2$ per cent. Investigations carried on at the Massachusetts Hospital for Inebriates and at the Long Island Hospital showed very definitely that alcoholism exerted very little influence as one of the causative factors of this condition. All the postmortem evidence that could be obtained gave the same result. He said that we must conclude that alcoholism is of slight importance as a causative factor in arteriosclerosis.

Dr. William Osler considers that there is no question about the association of angina pectoris and arteriosclerosis in a very considerable number of cases. Arteriosclerosis presents many phases of interest; when the blood-vessels of the head are affected severe pain is produced associated with migraine. In arteriosclerosis of the abdominal blood-vessels severe pain is rarely met with, and yet there are cases of angina pectoris in which the pain is almost entirely abdominal. The numbness and tingling of the lower extremities met with in old people, in diabetes, and in Bright's disease is due to senile arteriosclerosis. Dr. Osler divides the cases into four groups: 1. Those in which the angina attacks are definite, distinct, and severe in young persons, in neurotic conditions recurring over long periods of years, terminating fatally, and in which the

arteries show no sclerosis whatever. 2. Cases in which the angina pectoris is associated with syphilitic arteriosclerosis; these are amenable to treatment, and occur in young men with signs of cardiac lesions, but with evidences of syphilis definite and distinct. 3. A large group of cases occurring in the presenile. 4. A group of cases occurring between the ages of 50, 60, and 80. Transactions of the American Medical Association (Medical Record, June 11, 1904).

ARTERIOSCLEROSIS, TREATMENT OF.

Cases of arteriosclerosis are subdivided by Dr. James N. Anders into etiological categories as follows: (1) Those due to toxic agencies in the blood,—*e. g.*, in chronic alcoholism, lead poisoning, diabetes mellitus, syphilis, gout, rheumatism, and other infectious diseases; (2) arteriosclerosis caused by the constant ingestion of an excess of either the carbohydrates or nitrogenous food; (3) cases dependent upon constant hypertension, due to muscular overexercise, as in certain laborious occupations and violent competitive sports. He emphasizes the importance in early life with reference to competitive efforts in athletics. The maintenance of a complete nutritive equilibrium is a potent means of preventing pathological processes which led to arterial changes. In gouty subjects nothing is so vitally important as a suitable diet and regimen. There is, however, no special diet suitable for all cases of gout, no dietetic rules universally applicable. A suitable and considerable restriction in the amount of food is the prime requisite. Such subjects should adopt an open-air life coupled with regular systematic muscular exercise. By remembering the principal causes of arteriosclerosis it is clear that, by a proper regulation of the *séances,* massage becomes a most useful means of prophylaxis and exercises a beneficial influence upon the glandular secretions and the nervous system, as well as upon the vascular system. Warm baths are serviceable in lowering the tension of both the arteries and veins. It may be seriously doubted whether the disease is ever arrested by medicine; however, its progress may be retarded to some extent and the normal rapidity of the blood-current restored and the blood-pressure lowered by dilating the arterioles. The remedies employed for this purpose are nitroglycerin, the nitrites, and potassium iodide. Except in cases due to syphilis, the results obtained by the use of iodides are in no wise comparable in brilliancy to those obtained by following the careful application of hygienic measures and the use of nitrites. The iodides are called for, and have been shown to be of decided value in cases showing a luetic taint. Sphygmographic tracings indicate the results of nitrites and nitroglycerin. The results of these studies make clear the different conditions described under the title of arteriosclerosis. The blood-pressure is not materially increased in many cases dependent upon senile degeneration, chronic diabetes, and certain toxæmias. The nitrites are strongly indicated and most effective in that category of cases in which there is an early and marked increase in arterial pressure and the heart is hypertrophied.

If we wish to accomplish anything in the treatment of arteriosclerosis, especially its consequences, Dr. Alfred Stengel believes it should be done in the early stages of the disease, and, therefore, that greater efforts should be made in the direction of diagnosis and its eti-

ology. He feels convinced that alcohol is a very important cause. He was much surprised at a recent meeting of the British Medical Association in hearing the statement made that the convalescence of typhoid fever should take from one year to eighteen months, and, the more he sees of the end results of typhoid fever, the more he believes in the truth of this statement. After having had the disease, it is necessary to direct avoidance of strains of any kind until long after.

Dr. Frederick Shattuck refers to the multiplicity of causes of arteriosclerosis. It seems to him that the carrying of responsibilities, such as by the captains of industry, men who carry great strains, etc., is a cause; but these are the men from whom we cannot get statistics; he cannot but believe, however, that this weight-carrying is one of the causes of arteriosclerosis through defective metabolism. There is a high arterial tension in these people, and, if to that is added alcoholism, what is the result? The biggest alcohol drinkers in the country who still maintain good health are not the men who lead strenuous lives. In Canada the life is a hard one; the Scotch and the Scandinavians are enormous consumers of alcohol; the Scotch lead intelligent lives, yet not the high-tension life, as in this country. It is a notorious fact that a man cannot use alcohol here as in Europe. All this seems to show that there is an extreme complexity of problems with which we are dealing.

Dr. William Kraus states that the anatomical classification of the disease is fraught with difficulty. The etiological feature of this disease seems to be associated with the circulation of toxins in the system and with degeneration in solid organs. Primary degeneration is not so much the result of increased pressure or pathological change as in the circulating toxins in the outer coats. With regard to malarial fever, it must be very severe and characterized by long duration before it produces arteriosclerosis. In all cases changes in the kidney are found, and in the severe malarial fever there is usually associated albuminuria. An instance is referred to of a man who, twenty-four or twenty-five years ago, had suppression of the urine, and to-day this man cannot drink alcohol without raising the blood-pressure so much as to cause throbbing of the temples.

Dr. C. G. Stockton refers to the appearance of pain in the abdomen, depending upon arteriosclerosis, which is often not even suspected. Instead of using the ordinary warm baths he thinks better results are obtained from short hot or vapor baths, which have as good effect in opening the capillary vessels. When the nitrites or nitroglycerin are given and the drug is desired to have a constant and uniform effect, it should be given more frequently. Without the use of the iodides he does not think we shall have favorable results in the treatment of arteriosclerosis.

Dr. S. J. Meltzer assumes that he is not wrong in stating that local causes can cause local arteriosclerosis. In referring to Dr. Cabot's remarks he states that the peripheral arteries only were examined, but the splanchnic area was not examined, and he does not think that Dr. Cabot should draw the conclusions he did without examination of this area. Alcohol in health is sometimes a curse, but alcohol in disease is often a blessing.

Dr. Babcock does not think that we should attribute any special etiological influence to any one factor in the pro-

duction of arteriosclerosis. The form in which alcohol is consumed should be considered. The Germans are in the habit of consuming many quarts, 25 to 30 liters of beer a day, and he believes that in dealing with these individuals we must consider, not merely the fact that alcohol has been taken, but other factors, such as the excessive amounts of fluids consumed and the nutritive material such as is contained in beer. When individuals consume such large quantities of beer there is the additional strain to be considered.

Dr. F. R. Weber refers to certain salts which have a wonderful effect upon the blood-pressure. At present he is experimenting with barium chloride, which, like adrenalin, will increase markedly the blood-pressure. By its use he has been able to produce an obliterating endarteritis.

The association of alcoholism and arteriosclerosis is believed by Dr. Boardman Reed to be due to the effect of the former upon the gastro-intestinal tract. Toxins that are formed in the alimentary tract may produce arteriosclerosis.

Dr. A. McPhedran states that three years ago there was an epidemic of peripheral neuritis at Birmingham, and attention was drawn to the fact that it was not due to the alcohol, but to arsenic.

In referring to those cases of arteriosclerosis dependent upon syphilis, Dr. A. Jacobi states that we expect to be successful in the treatment by the use of mercury and the iodides. He refers to cases of congenital smallness of large and small arteries, and here there is a peculiar form of congenital sclerosis that gives rise to obstruction in the peripheral circulation, and it is attended by an increase of the size of the heart. Transactions of the American Medical Association (New York Medical Journal and Philadelphia Medical Journal, June 25, 1904).

ASCITES FOLLOWING CIRRHOSIS OF THE LIVER, TALMA OPERATION FOR.

The principal cause of ascites in cirrhosis of the liver is the obstruction to the portal circulation. The percentage of cures or improvements following the operation is about 49.08 per cent. The operation has been of benefit in cases of hypertrophic cirrhosis without ascites, and promises some hope in cases of ascites due to cardiac disease. For the success of the operation it is necessary that a sufficient number of normal liver-cells be present. The operation should be performed early in the disease, in anticipation of ascites, before serious complications have taken place. Simple scarification of the omentum and a corresponding area on the parietal peritoneum is sufficient to secure success. Scarification of liver, gall-bladder, and spleen is not essential.

The dietetic treatment of the patient should be continued after the operation, and alcohol in every form strictly avoided in the hope of stopping the destruction of liver-cells and the formation of cicatricial tissue. J. J. Jacobson (Cleveland Medical Journal, June, 1904).

BACTERIA IN NORMAL TISSUE.

It is held that the organs of the body normally are sterile; in fact, this is the principle on which asepsis in surgery and medicine is supposed to be based. There has accumulated considerable evidence, however, that this apparently fundamental postulate must be essentially modified. It has been generally conceded that bacteria can pass through an ulcerated or abraded intestinal mu-

cosa or other epithelial surface, but an intact surface is supposed to be an efficient barrier to the entrance of germs.

Adami (Journal of the American Medical Association, vol. xxxiii, page 1509) injected the colon bacillus intravenously into animals, and in fifteen minutes these organisms were found in the cells of the liver and kidney. Two or three hours later the organisms appeared as diplococcoid forms and often arranged in the cells in a characteristic manner. This diplococcic appearance is due probably to the disintegration of the bacteria by the tissues of the body. Organisms may be seen frequently in the intestinal or mesenteric lymph-glands, and many hold that they are constantly present in these places. In cirrhosis of the liver Adami observed small granular bodies often in diplococcoid arrangement in the liver-cells, which were at first taken for pigment. Later he found these bodies present in practically all livers taken at autopsy, and considers them bacteria undergoing destruction. Bodies similar in appearance have been found in normal kidneys also.

Nicholls (Journal of Medical Research, vol. xl, No. 2) describes a method of observing bodies which he considers bacteria in the mesentery of normal animals. After removing the epithelial cells on both surfaces by means of a swab, he cuts out a small piece of the mesentery under strict aseptic precautions. This tissue is then stained in carbo-thionin, cleared, and mounted in balsam. About the cells in the mesentery he observes bodies often in diplococcoid form and arranged very characteristically around the nuclei of cells near the capillaries. These bodies he considers bacilli absorbed from the intestinal tract and modified by the digestive action of the tissues. He also reports cultures obtained from perfectly normal livers and kidneys of animals removed under strictest aseptic precautions.

While these results require further confirmation and more extended investigation, the possibility of bacteria being taken into the body and distributed in various organs is certainly an interesting subject, and may throw some light on the numerous infections which so often originate in some unexplained manner in various parts of the body. As Adami expresses it, the organs are not actually, but only potentially, sterile, the bacteria being carried to them continually, and in health undergo a rapid disintegration. If the resistance of the body is lowered or an excess of germs invade the organs, or if the virulence of the bacteria which normally enter the body, such as the colon forms, should increase, an infection might result. This may be the true explanation of the so-called cryptogenetic septicæmias, terminal infections, idiopathic fevers, and the like. Editorial (Journal of the American Medical Association, June 18, 1904).

CASTRATION FOR TUBERCULOSIS OF THE TESTICLE.

Radical treatment should not be allowed to become obsolete; castration has an exceedingly low mortality, considered as an operation, and if performed at an early period of the disease there is a good chance of preventing further infection from the bacillus of tuberculosis from taking place. Castration certainly complies with one of the most urgent demands of modern therapeutics, namely: the eradication of the soil breeding the disease, when, of course, the affection has not been present for too long a period and has not

extended to other parts of the body. Conservative surgery applied to the testicle is practically useless when the organ is affected by tuberculosis, and it allows the dangerous consequences to arise which the radical treatment directly tends to avoid. C. G. Cumston (American Journal of the Medical Sciences, June, 1904).

CATGUT, CLAUDIUS METHOD OF STERILIZING.

Giannettasio (Gazzetta degli Ospedali e delle Cliniche, February 7, 1904) recommends the method of sterilizing catgut which was recently introduced by Claudius, of Copenhagen. This method has been used with success in a large number of operations by Maiglini and by Dalla Rosa, as well as by other surgeons. The strands of commercial catgut are wound, in the usual way, loosely upon glass spools, and are immersed in the following solution: Iodine, 1 gramme; potassium iodide, 1 gramme; sterile distilled water, 100 grammes. This solution is kept in wide-mouthed bottles with glass stoppers, which can be boiled or sterilized by steam. The catgut is left in this solution for eight or ten days, during which time the receptacles must be carefully stopped to prevent evaporation of iodine. At the end of this time the catgut is ready for use. The spools are taken out, when needed, by means of long forceps, and the excess of iodine is wiped off from the catgut by means of sterilized gauze. The catgut is then of a lustrous black color, and has all the properties of silk, being elastic, plastic, and tied with great facility. The strength of this catgut is such that operations requiring commonly the larger numbers (from 3 to 5) may be performed with relatively small numbers (from 0 to 2). Catgut thus prepared is less quickly absorbed than the ordinary catgut, and is very useful for skin suture in which the antiseptic action of the iodine guarantees against stitch abscess. The writer prefers to remove the excess of iodine from this catgut, before using it, by immersing it in an antiseptic solution. (New York Medical Journal and Philadelphia Medical Journal, April 30, 1904.)

CHORIO-EPITHELIOMA.

The syncytium is of fœtal origin. The syncytium and the Langerhans cell are different stages of the same cell: the trophoblast. The chorio-epithelioma malignum is a growth consisting of fœtal cells only. As a growth, built up of epithelial cells without blood-vessels and connective tissue, it has to be placed in a class by itself. The chorio-epithelioma of the woman is always a consequence of pregnancy; it has nothing to do with teratomas, as these are inborn growths.

The chorio-epithelial formations in teratomas of the testicle and the ovary are proving the fœtal origin of the syncytium, but are totally different from them. The chorio-epithelial masses in these tumors proceed from the ectodermal cells, and are in their histogenesis equal to all other ectodermal products in teratomas, as the neuro-epithelium, etc.

The deportation of parts of villi and their epithelial layer is a physiological fact, and probably takes place during the whole period of pregnancy. The epithelial layer of the villus preserves its embryonal energy of proliferation until birth. Therefore a chorio-epithelioma may arise at any time of pregnancy, when the natural protective forces of the maternal organism become

deficient. Georg Schmauch (Journal of the American Medical Association, June 4, 1904).

CONSTIPATION, CHRONIC HABITUAL.

For the daily evacuation of the bowels a combination of several factors is necessary. In the first place, the function of the muscular coat of the intestine and of the nerves controlling its activity must be neither excessive nor deficient. In the next place, the secretions of the intestine and its accessory glands must be normal in quantity and in quality. Thirdly, the food-residue must be adequate in amount and capable of exerting a certain degree of irritation, in part from the presence and activity of fermentative bacteria. Finally, the bowel must be habituated to regularity of action. Constipation may thus be due to a variety of causes, and these may be operative, singly or collectively. In many cases no doubt a condition of atony of the muscular coat of the intestine is present, while occasionally a state of spasticity may be the underlying factor. That in some instances, perhaps in many, the disorder is due to a too perfect digestion and absorption of the food, resulting in a deficiency of fæcal matter, with diminished peristalsis, owing to absence of the products of fermentative activity, is not generally appreciated.

Observations have been made that go to show that not alone the total amount of fresh fæces is small in the case of individuals suffering from habitual constipation, but that the amount of dry substance is likewise greatly diminished as compared with the normal. Under such circumstances, further, the residue of food, including muscle-fibres, starch-cells, and cellulose membranes, has been found microscopically to be diminished, and likewise the number of bacteria. The conclusion has therefore been reached that chronic constipation is in some instances due to unduly perfect assimilation of the food in the stomach and small intestine, so that, among other things, there is an insufficiency of pabulum for the activity of the bacteria in the large intestine, with the result that the products of fermentation are generated in lesser amount and the stimulus to peristaltic activity is thus diminished in greater or lesser degree.

With the object of throwing additional light on this subject, Dr. Hans Lohrisch (Deutsches Archiv für klinische Medizin, Nos. 3 and 4, vol. lxxix) undertook a series of metabolism experiments, and found that the total amount of fæcal matter discharged in cases of constipation was considerably diminished as compared with the normal—125.5:249.5. This diminution was due not alone to a lessened amount of water, but also to a lessened amount of dry substance, which was reduced almost one-half—33.9:59.3. The amounts of nitrogen, fat, and carbohydrates were also reduced, as well as that of cellulose. Further, the difference in the number of calories eliminated by normal and constipated individuals was striking—namely, 266.1:190.2. When, on the other hand, constipation was induced artificially by the administration of opium and inhibition of peristalsis, the total amount of fæcal matter was diminished, but this result was due to the large loss of water, the amount of dry substance being rather greater than normal. The evidence thus goes to support the view that in some cases of habitual constipation at least there is unduly perfect assimilation of the ingested food. That the deficiency in nitrogen, fat, carbohydrates, and cellulose is not due to

the activity of bacteria is shown by the fact that these are actually diminished in number in cases of habitual constipation. It has, however, been suggested that the smaller number of bacteria present are afforded better opportunity for the exercise of their activities; but, while such a view seems hardly probable, it is difficult of contradiction, and the results of investigations on this point are inconclusive.

The practical lesson to be learned from the foregoing observations is that, in cases of habitual constipation, care should be taken to provide for a certain mass of physical bulk in the food advised, and in this connection fruits and vegetables subserve an especially useful purpose, and also for the ingestion of a definite and liberal supply of water. Editorial (Medical Record, May 21, 1904).

COUGH, TREATMENT OF.

The author condemns gargles for the ordinary patient, and thinks that in the use of the spray apparatus an India-rubber reservoir between the pump bulb and the bottle is very necessary to keep up constant pressure. The only right way to use the spray apparatus is for the patient to hold the mouth wide open, placing the spray nozzle just within the lips, and then take several deep inspirations while the spray is still actively issuing forth. This requires a continuous current. An exceedingly useful mixture for such a spray is one composed of tincture of benzoin, compound wine of ipecac (B. P.), and a 5 per cent. solution of cocaine in equal parts. This, properly used, relieves the cough, breaks up irritable conditions in the larynx, and is very useful when nothing is to be seen and yet the patient complains of a tickling in the throat. The avoidance of changes of temperature is mentioned as valuable. In a useful cough which clears out the lungs, precautions need not be adopted. In definite phthisis with a useful cough the author has found nothing so efficacious as 8 grains of iodide of potash; half a drachm of syrup of Tolu, and water up to half an ounce, used three times a day. In chronic subacute bronchitis the avoidance of smoking or excessive talking is advised, and the cold morning bath is believed to be better than any drug for those who are accustomed to it. In other cases when the chronic cough is troublesome the iodide prescription is useful, but more for adults than children. In the latter belladonna does better work. F. J. Smith (British Medical Journal, May 28, 1904).

DECAPSULATION OF THE KIDNEY FROM THE EXPERIMENTAL STANDPOINT.

Since decapsulation of the kidney was first proposed as a therapeutic procedure explanations as to the rationale of the results have not been lacking. Inasmuch as autopsies on these cases have so far been very infrequent, the writers of the earlier articles relied for their theories on analogy or pure supposition. Within the last six months a number of articles have appeared dealing with the subject from an experimental point of view. In this country, Harold Johnson (Annals of Surgery, April, 1903), and, in Germany, Asakura and Stursberg (Mittheilungen aus den Grenzgebieten der Medizin und Chirurgie, vol. xii, No. 5) have studied the effect of decapsulation on normal kidneys by the experimental method.

In a recent article Hall and Herzheimer (British Medical Journal, April 9, 1904) publish the results of their work on normal kidneys, and also on

kidneys in which an acute nephritis had been experimentally produced. The results of decapsulation of normal kidneys were the same as those observed by Johnson; at the end of from ten days to three weeks a new capsule, in many cases thicker than the original one, had formed. Futhermore, neither Johnson nor Hall and Herzheimer were able to find any evidence of increased vascular connection between the new-formed capsule and the cortex of the kidney. In producing an experimental nephritis Hall and Herzheimer used ammonium chromate, which produced a degenerative nephritis with albumin and casts in the urine, lasting from sixteen to eighteen days if the animal survived. The decapsulation was sometimes unilateral and sometimes bilateral, and was usually performed on the third day. A naked-eye examination of these kidneys showed that, as a rule, a new capsule as thick as the old one had formed by the end of ten days; if the animal was permitted to live longer than this, the capsule became thicker than normal and often became adherent to surrounding organs. Microscopical examination showed that the new capsule was fibrous in character and often dipped down into the kidney where the organ had been injured by the decapsulation, so that the appearance of early interstitial nephritis was produced in some instances.

The authors conclude from their work that from an anatomical standpoint there is no very satisfactory explanation of the effects of decapsulation; there is no evidence that the decapsulation produces improved circulation, at any rate in acute cases, and in some cases an actual increase in the connective tissue of the organ was produced. They point out that the effect of decapsulation on chronic nephritis has so far escaped experimental study, as we know of no way of producing chronic nephritis in animals. From analogy to the effects produced in acute cases, however, it seems unlikely that a satisfactory anatomical explanation will be found. The failure to show that the good effects of the decapsulation are due to increased circulation, or to the relief of tension, which did not occur in some of their experimental cases, leads the authors to suggest that a reflex action on the sympathetic may cause the improvement. If this is the case, they argue that the so-called renipuncture, *i.e.*, the mere splitting of the capsule by longitudinal and transverse incisions, should be just as effective as, and much less dangerous than, decapsulation. Editorial (Journal of the American Medical Association, June 11, 1904).

DECAPSULATION OF THE KIDNEYS FOR THE CURE OF CHRONIC BRIGHT'S DISEASE, MEDICAL ASPECT OF.

Chronic Bright's disease in its development constitutes a diseased condition of the entire system. It is a disease of very gradual development, and in the great majority of cases has existed for months and years before the patient comes under observation. It is produced by a chronic toxæmia, either systemic or infective in origin, which produces coincidently, as a result, widespread arterial and cardiac degenerative changes, which, being once established, are permanent, and which in their development eventually constitute the most threatening element of the disease.

General œdema or anasarca in chronic renal disease is in many instances in great measure a cardiac dropsy, brought about by advancing myocardial degeneration. It is occasionally so in chronic parenchymatous nephritis, and almost

invariably so in chronic interstitial nephritis. It may be stated that, in like manner, developing anuria and uræmia in chronic nephritis may be largely cardiac in production, the functional inadequacy of the kidneys having its inception in the fall of blood-pressure incident to circulatory failure. In the later stages of chronic nephritis, of whatever character, the case is apt to take on these cardiac aspects, which virtually convert the therapeutic problem into a question of sustaining a failing heart.

Albuminuric retinitis must be looked upon as one of the terminal symptoms of chronic nephritis. The concordance of opinion places a limit of two years upon the prognosis after development of this complication. The statistics gathered by Suker of cases operated on show that in place of prolonging this limit of expectancy, operation has a decidedly contrary effect. It is to be borne in mind that chronic nephritis is a disease of slow and spasmodic development. It is well to realize its exacerbations and remissions, so as to avoid the error of mistaking remissions for cures. The mere fact that the general condition of the patient improves somewhat after decapsulation does not establish the validity of the operation, for hygiene and rest will do the same for the patient to a remarkable degree in many cases. As the factors of hygiene and rest are invariably associated with the surgical procedure, it is possible that the resulting benefit may, to some extent, accrue from those sources.

The results of experimentation demonstrate that, within a period of three months and a half after decapsulation, a new, and in most cases, a tougher, fibrous envelope has taken the place of the original capsule. This fact may account for the many relapses and deaths after that period in cases operated on, and in chronic cases, at least, it narrows the prospect of improvement to a period of months. A. R. Elliott (New York Medical Journal and Philadelphia Medical Journal, June 4, 1904).

DIGITALIS IN HEART DISEASE.

In mitral regurgitation Dr. Frank Jones found digitalis the most helpful of drugs whenever symptoms were present. On the other hand, in aortic regurgitation it was likely to do more harm than good. The false principle of giving digitalis whenever there is heart disease with symptoms, Dr. Jones considers, cannot be condemned too much. In mitral insufficiency it is the right heart that suffers, and the toning up of the heart-muscle as well as the toning up of heart-nerves are important indications. On the other hand, when there is passive hyperæmia and venous stasis the condition is sure to be benefited by digitalis. In aortic regurgitation, however, the left ventricle, owing to the thickness of its muscle and its capacity for development, is able to compensate up to the limit of vitality and maintain the compensation for a long time. To further whip this willing muscle into activity is like whipping a willing horse overloaded at the foot of a hill.

In disease of the aortic valves there is accompanying arteriosclerosis, with involvement of the coronary arteries. Under these conditions the blood-supply to the heart is much weaker than it should be. If digitalis be administered the heart is nevertheless asked to do extra work, though it is already in need of nutrition for the work that it is doing. When compensation fails, then the left ventricle goes all to pieces; not

one part more than another, but everywhere. Dr. Jones considers that there is never any justification for the use of digitalis in aortic regurgitation, no matter what the condition of the heart-muscle may be. Not infrequently, however, in aortic regurgitation there develops a condition of sleeplessness with dyspnœa and marked anxiety. In these cases there is need of a stimulant and, owing to the association of digitalis with heart disease, there is a temptation to use the drug. Fatal results in such cases from its use, however, are not uncommon. Dr. Jones has found nitrate of strychnine of great service in such cases and the indications are for this substance, which tones up the nervous system through the heart and through the vagus.

Dr. James Tyson said that he agreed with Dr. Jones in the main, though as the proof of the pudding is in the eating so the proof of remedial measures is in their application to a special case. Dr. Tyson finds one exception to the general law with regard to the danger of digitalis in aortic disease when there is loss of compensation and both aortic and mitral valves are leaking. If patients are then put in bed and given small doses of morphine, usually not more than $^1/_8$ grain, to which atropine is added, the resulting quietude will soon be noticed. If now digitalis in small, but gradually increasing, doses be administered without looking for effects too soon, certainly not before the second or third day, the good effects will be surely noted. It is not easy to ascertain the manner in which digitalis does good in such cases, but of the correctness of the practice there is no doubt.

Dr. Richard Cabot said that theory must count for little in the application of drugs for heart disease, and that experience is everything. Personally he has found that digitalis in mitral disease nearly always does good. In aortic regurgitation it as constantly does harm. This is especially true in old persons whose arteries are degenerate or in advanced forms of aortic disease. In young persons suffering from mitral and aortic disease due to rheumatism or some such infectious process digitalis undoubtedly does good, but not so much good as in primary mitral disease. Other combinations of aortic and mitral disease seem also to be benefited by the use of the drug if its administration is not delayed until too late in the case.

In certain cases circulation failure becomes manifest notwithstanding the fact that the heart continues to beat strongly. In these cases it is important to take off the brakes. This can be done by relieving the circulation of some of its contents by means of purgation and by free diuresis. This method of treating such circulatory disturbances was very familiar to the older physicians and represents the mechanical solution of a serious problem, but is not often employed by the modern physican, who thinks too much of specific drugs for symptoms.

Dr. De Lancey Rochester is quite in accord with Dr. Jones, as regards the general principles of the use of digitalis in heart disease, and considers that a very important element in the treatment of heart affections is rest. The case mentioned by Dr. Tyson, in which there is decided break in the compensation with a combination of aortic and mitral disease, will be helped just as much by rest as by digitalis with rest. Small doses of digitalis are very slow to act and do not accomplish near as much as the absolute rest in bed. Dr. Rochester considers that mitral stenosis is also

an indication for the use of digitalis and, indeed, to quite as great an extent as is mitral regurgitation. Digitalis by lengthening both systole and diastole of the heart, gives a longer time, and thus enables the auricle to accomplish its work notwithstanding the obstacle in the way.

Dr. S. C. James said that to most physicians the word heart disease means at once the use of digitalis; as a consequence digitalis has probably done more harm than good, though there is no doubt that it is a very valuable drug. It would be much better for physicians and their patients, however, if the words "heart disease" were always associated with the idea of free movements of the bowels, and the use of laxatives instead of digitalis. Dr. James has found compound licorice powder and compound jalap powder of more service than digitalis in advanced cases with severe symptoms.

Dr. E. F. Wells considers that severe cases of heart disease are much more amenable to treatment than is usually thought. Great benefit can be secured for lost compensation. When the patient is found with limbs much swollen, sitting in a chair, unable to sleep lying down, and resting very little in any way, morphine in small doses, sometimes not more than $^1/_{16}$ grain being necessary, will secure sleep for the patient for hours. Better than any other remedy in conjunction with this is a cathartic that will produce watery movements. Dr. Wells prefers elaterin, from $^1/_8$ to $^1/_{10}$ grain every three hours, until six or eight watery stools are secured. If, after this, water is removed from the feet by means of punctures, the patient will be made quite comfortable. Then, after forty-eight to seventy-two hours, digitalis may be given with good results. Transactions of the American Medical Association (Medical News, June 18, 1904).

ECLAMPSIA, BLOOD AND URINE IN.

The writer first established by comprehensive research on normal pregnancies and childbirths the standards for comparison with the eclamptic cases. He determined the alkalinity of the blood, number of former elements, chlorides, concentration of serum, freezing-point, etc., and for the urine, the acidity, proportion of the constituents, etc., establishing the "chloride quotient": that is, the relations between the chlorides and the total salt molecules. The kidneys were always found anæmic in eclamptic subjects, but nothing to indicate a uræmic etiology for the eclampsia. The most striking change in the blood in eclampsia is the marked hyperglobulia, evidently due to loss of plasma. The chloride quotient is usually constant, but in eclampsia it varies considerably. It averages much lower than in normal parturients, even down to 2 per cent.; and is very much less than during pregnancy, the average for which is 40 per cent. This phenomenon is probably due to some sudden interference with the circulation through the kidneys, manifestly the result of some contraction of the vessels in the kidneys. These contractions are part of the labor contractions, and, in fact, the onset of the convulsions in eclampsia corresponds with the periods of rhythmical contractions of the uterus. Labor is unusually vigorous in eclampsia. Women with exceptionally energetic labor contractions are particularly prone to eclampsia. It is liable to come on with the first labor-pains, especially in primiparæ and in case of artificial de-

livery. The labor contractions have long been known to have an unmistakable influence on delivery albuminuria. The labor-pain is accompanied by contraction of the arterial blood-vessels. This entails injury to certain organs, as their nourishment and function are impeded, and fatty degeneration, infiltration, or anæmic necrosis is liable to result. The sudden anæmia in the brain causes convulsions; the anæmia in the kidneys checks the elimination of water and of salts through them. This conception of eclampsia does not exclude the action of toxins, but shows that it is possible without them. W. Zangemeister (Zeitschrift für Geburts. und Gynäkologie, vol. I, No. 3, 1904).

EPISTAXIS, TREATMENT OF.

A small pledget of sterilized absorbent wool about 1 inch long, $^1/_2$ inch broad, and $^1/_4$ inch thick should be soaked in equal parts of a 10 per cent. solution of cocaine and 1 in 1000 adrenalin chloride. This should be passed into the nostril and placed against the septum parallel with the floor of the nose so that only the anterior third of the pledget is visible from the outside (*i.e.*, without the use of a speculum). Now the nostrils should be gently compressed with the fingers for five minutes. If the above remedies are not at hand, 20 grains of antipyrin may be dissolved in $^1/_2$ ounce of hazelin and used in the same manner. Failing these, the wool may be soaked in lemon-juice and inserted as above. If lemon-juice cannot even be had, moistening the wool with turpentine may be tried.

In a large proportion of cases these measures will check the bleeding, and the small wool plug may be left in the nose for twenty-four hours and then gently removed.

Should hæmorrhage recur after a short interval, it may be necessary to adopt measures for more permanently sealing up the weak spot in the vessel-wall, and the following measures may be adopted:—

The nostrils should be dilated with a suitable speculum and a 10 per cent. solution of cocaine applied to the vessel-wall. After five minutes, a probe soaked with solid nitrate of silver should be applied to the bleeding points and held in position for two minutes. It should be gently removed, and a small quantity of carbolized vaselin applied to the whitened spot. A loose wool dressing should be placed in the nostril for a few hours. Chromic and monochloracetic acids may be applied in the same way.

The galvanocautery may be applied at a dull-red heat to the bleeding point, and it must be remembered that at the first moment of application a bleeding may be started which it is the desire to stop, and therefore it is well to adopt means for protecting the patient's clothes from being soiled. To the small slough produced by the cautery it is well to apply a little carbolized glycerin.

Should these methods fail (and they may do so in exceptional cases where the bleeding is more general, and comes not only from the usual situation on the septum, but also from the floor of the nose and the anterior end of the inferior turbinal bone), the nose should be packed with a strip of soft gauze soaked in adrenalin chloride or even hazelin. The ribbon gauze should be about 1 inch in breadth and packed in gently for about 2 inches' distance, and from the floor of the nasal cavity upward. A clotting will rapidly take place in the meshes and the bleeding will cease. The packing may be left in

place for from twenty-four to thirty-six hours.

Immediate checking of violent hæmorrhage may sometimes be secured by Rose's epistaxis tampon, a thin gutta-percha, conical bag which can be inflated with air after it has been passed into the nose and the air retained by means of a stopcock.

In almost intractable cases of epistaxis in which all the above remedies either fail or only succeed for a short time, Hunter Mackenzie has practiced with success the dissecting up of the mucous membrane of the anterior part of the septum, followed by gentle packing of the nose. When nasal hæmorrhage follows intranasal operations some forms of plugging through the anterior nares will generally be relied upon. H. Tilley (Clinical Journal, June 1, 1904).

EXOPHTHALMOS, PULSATING, DUE TO TRAUMATIC ANEURISM OF THE INTERNAL CAROTID ARTERY.

A traumatic sacculated aneurism of the internal carotid in the cavernous sinus can give rise to the typical symptoms of pulsating exophthalmos. This lesion can follow a head injury without being directly caused by basal fracture. There is no evidence to prove that this condition does not always occur at first, and a communication with the veins is a later and secondary consequence. The signs of pulsating exophthalmos are not necessarily due to the presence of arterial blood in the ophthalmic veins, and need not be dependent on excessive dilatation of these veins. In young subjects and in traumatic cases seen early, ligation of the common carotid is the best treatment. H. L. Barnard and H. M. Rugby (Annals of Surgery, May, 1904).

FÆCES, BLOOD-TRACES IN, INTERPRETATION OF FINDINGS OF.

The writer's research was undertaken at Königsberg, and it has confirmed the announcements of Boas and others in regard to the differential value of "occult" blood-findings in the fæces. In only 1 out of 18 cases of cancer of the stomach were the findings negative. In 83 per cent. of 28 cases of ulcer of the stomach the findings were likewise positive at some times, but not at others, thus differentiating the ulcer from the more constant findings in case of cancer. Ingestion of raw or rare meat is liable to prove a source of error, and also the fact that blood is apt to be found in the fæces for several days after a single copious hæmorrhage. In 2 out of 6 cases of typhoid the finding of blood in the stools proved to be a forerunner of a severe hæmorrhage a day or so later. Traces of blood were also found in the fæces in case of uncompensated valvular heart defects, but they vanished so soon as the congestion subsided. Blood was found in a case of catarrhal icterus, but never in cholelithiasis except once the day following an examination of the stomach. The guaiac test was also positive in case of secondary cancer of the liver and in one instance of cancer in the cystic duct. The findings were negative in a case of cancer of the pancreas, but were positive in a hæmorrhagic pancreatitis. As many as 450 tests were made to determine the amount of blood ingested which would give positive response to the parallel guaiac and aloin tests. Even as little as 3 grammes of blood gave a faint response. Sometimes one of the tests would be positive while the other was dubious. Spectroscopic tests for hæmatoporphyrin were positive only when the other tests were found markedly

positive. G. Joachim (Berliner klinische Wochenschrift, vol. xli, No. 18, 1904).

GLYCOSURIA AND HYPERTROPHIED THYROID IN PREGNANCY.

Bar (L'Obstétrique, March, 1904) considers that a case under his observation seemed to show that there is a close association between eclampsia, the albuminuria of pregnancy, and certain affections of the thyroid body. The patient was six and one-half months pregnant; she had noticed that her neck had been swelling for some time; its circumference was 11 1/4 inches above and 12 3/4 inches below. There was no exophthalmos or œdema, but there was a trace of albumin in the urine, which contained 3.66 grammes of sugar to the liter. Under a diet of milk and meat the glycosuria vanished, but on its discontinuance sugar reappeared and continued for three weeks until delivery. At that date the circumference of the neck was still 11 1/4 inches above, but nearly 14 1/2 inches below. A fortnight after delivery sugar had disappeared from the urine, the neck showed slight reduction in circumference below (14 inches); two months later the measurement was 12 3/4 inches, as when the patient was first examined. The glycosuria—a disturbance of nutrition which in Bar's opinion is akin to albuminuria—was possibly caused by changes in the thyroid. (British Medical Journal, May 28, 1904.)

GRANULATING SURFACES, RUBBER TISSUE IN THE TREATMENT OF.

The method advocated by the writer is to use rubber tissue, overlapping the area to be treated by several inches, after local applications of well-powdered boric acid, and covering it with absorbent gauze, again overlapping its edges, and fixing the whole with a snug supporting bandage. As a rule, the dressing should be left undisturbed for at least five days or a week, and sometimes even longer. The boric acid acts as an antiseptic astringent; the irregular surface of the gauze wrinkles the rubber tissue, giving a chance for the epithelium to climb; the smooth surface of the tissue insures a smooth surface to the granulations. This seems to work well on flat, firm, granulating surfaces, burns, etc. The possibility of toxic absorption of boric acid is mentioned, but so far there has been no such effect. The general results of the treatment in the cases in which it was applied seemed to be entirely favorable. W. S. Schley (Medical Record, June 4, 1904).

HAY FEVER, TREATMENT OF.

E. Fick (Therapeutische Monatshefte, April, 1904) deals with two methods of treating hay fever: first, by means of Dunbar's antitoxin, and, second, by his own method by employing aristol. Dunbar's treatment is based on the assumption that all hay fever is due to the effect of the toxins of grass pollen. The author considers that Dunbar starts on a false premise. His experiments with pollen introduced into the nose of persons and producing attacks of hay fever in those who had had this disease before, but not in others, is open to criticism, since the amount of pollen introduced was enormous as compared with the number of pollen which can be gathered in the air under the most favorable circumstances. Next, Dunbar refers the eye symptoms to the direct action of the pollen on the conjunctiva. Mohr has recently proved that by protecting the nose by means of a fine filter the attacks keep off alto-

gether and no eye symptoms take place. It therefore follows that some other cause must act in producing the eye symptoms. The writer's experience teaches that other things besides grass pollen can produce hay fever. For example, some people get an attack of this malady as soon as they come into contact with the blossoms of the limetree, or of roses and many others, while the so-called autumnal fever is generally accepted as being due to the blossoms of the *Artemisia absinthium*.

Fick considers that the antitoxin, which, according to Dunbar, produces a short-lived immunity, does not and cannot have any action at all. In the second part of his paper he deals with his theory of the etiology of hay fever. To start with, the patient is always neurasthenic. The attacks themselves are directly caused by the action of some agent, of which grass pollen is the most common, but by no means the only one. The nasal symptoms are the direct effects, and the eye symptoms are reflex symptoms. The writer denies that the nasal symptoms are due to vasomotor disturbances, and shows that irritation of the nerve-endings of the trigeminal causes a hypersecretion. The hypersecretion in the case of hay fever is localized in the antrum of Highmore, and the fluid finds its way into the middle nasal fossa naturally. The writer states that he has found in aristol a means of curing all forms of nervous coryza, including hay fever, when it is applied locally to the affected part. He is able to pass a cannula, which is very thin and curved in correspondence to the lower turbinated bone, into the maxillary antrum in about 95 per cent. of all cases. Through this cannula he blows the aristol powder into the antrum, and finds that, as a rule, this need only be done six or seven times to produce a complete effect. The powder is applied every day for three days, after which time the attacks become much less frequent and milder, and often stop altogether. When they recur, the insufflation is repeated. (British Medical Journal, June 11, 1904.)

HEART-ACTION, EFFECT OF THE APPLICATION OF COLD ON.

The author has made some very careful observations in various diseased conditions, in order to determine the truth of the almost universally accepted dictum that cold acts as a sedative to cardiac action. He comes to the conclusion that the application of cold in the cardiac region benefits a certain class of patients suffering from cardiac insufficiency, whether of a neurotic or organic nature. This is shown by an improvement in the pulse-rate, a reduction in its frequency, and an increased arterial pressure. He considers that one of the most important factors in the attainment of a favorable result is the enforced quiet to which the patient is subjected. In other cases no results can be perceived of an objective character, and these cooling methods cannot compare in their effects with digitalis. The application of cold is agreeable to the patient, but equally good effects are produced in most cases by water of an indifferent temperature. Moreover the application of a certain amount of moderate pressure on the cardiac region also seems to relieve the patient to a more or less marked degree. W. Krebs (Berliner klinische Wochenschrift, April 25, 1904).

HEART-SOUNDS, NONVALVULAR.

Accidental heart-murmurs in anæmia may be caused by lessened cohesion of

the blood, relative insufficiency of the valves, or increased velocity of the blood-flow. Although comparatively infrequent, diastolic murmurs over the heart are found which are not caused by valvular defect nor transmitted from a venous hum.

Functional disturbances of the heart, such as are occasionally accompanied by accidental murmurs, may lead, if long continued, to organic disease of the heart and blood-vessels. An accidental murmur may arise through disturbed innervation of the heart; the exact way in which such a murmur is produced is not known.

There is a class of functional heart-murmurs for which no demonstrable cause has been found. Anomalies in the structure of the heart cause some of the nonvalvular sounds occurring in the cardiac region. Deformity outside of the heart may, by pressure, also give rise to adventitious murmur.

There are probably instances in which nonvalvular heart-sounds without endocarditis accompany a slight degree of muscle degeneration not great enough to cause a displacement of the apex-beat or increase in the transverse area of dullness on percussion. The only sign of pathological conditon of the heart-muscle may be the disturbed heart-action. In slight degrees of muscular degeneration recovery may be complete. When the structural change is more pronounced, areas of fibrous tissue develop in the heart-muscle, which later become a factor in heart disturbance.

A large number of accidental heart-murmurs are in reality regurgitant murmurs due to relative insufficiency at one or another ostium. The relative insufficiency may be caused by dilatation of the commencement of one of the great vessels or by stretching of the heart-cavities, causing an increase in the size of the valve-ring. Atheromatous and myocardial degeneration and overstrain —mental, nervous, or physical—tend to produce these dilatations. J. G. Cross (Northwestern Lancet, June 15, 1904).

HYDROCEPHALUS.

Excessive secretion of the cerebral meninges may occur in any form of animal life. The various forms of vegetable life are subject to excessive local or general secretion to a fatal degree. Hydrocephalus, ventricular or meningeal, may develop *in utero* or at any time throughout infant or adult life. The cases of spontaneous recovery are probably numerous, especially in infant life, in which the arachnoid is alone involved. All cavities may unite, with or without external rupture; when so, it is usually fatal, not necessarily instantly so. Spontaneous rupture may occur externally or subcutaneously, with an occasional recovery. The effusion may be into the lateral third or fifth ventricle, or it may be in the arachnoid or subarachnoid cavity, one or all.

A clot in the arachnoid cavity may cause a cyst which will enlarge, with all its consequences. Syphilis, tuberculosis, and rickets have been assigned as causes of hydrocephalus, but such have never been proved; the cause is yet unknown. Sometimes zones of new osseous material are scattered here and there in the meninges, and sometimes upon or in the brain substance. The septum lucidum is invariably thickened, as are the cerebral meninges in general.

Probably the greater number of cases of early hydrocephalus, whether of the third, fourth, fifth, or lateral ventricle, or of the arachnoid variety, can be cured by some form of drainage. Continuous

drainage by seton or the repeated use of the trocar has given the best results in the way of benefit or cure. Spinal drainage has been practiced in a very limited degree, and its value is as yet undetermined. Subcutaneous drainage has not resulted in a cure, but there seem to be many possibilities for this method. Trephining for drainage is only resorted to in cases in which the fontanelles have been closed by bony union.

Results from drainage are more favorable if done when the presence of fluid is first detected. It is sometimes necessary to drain both hemispheres, together with the right and left cerebellar cavity. The secret of curing arachnoidal hydrocephalus by drainage probably lies in obliterating the arachnoidal cavity. However, this can be done with hydrocephalus of the third, fourth, and fifth ventrical variety. The cardinal principle in this, as in all operations upon the brain, is asepsis. B. M. Ricketts (American Medicine, June 18, 1904).

HYPERACIDITY AND HYPERSECRETION.

The writer insists that a sharp distinction should be made between hyperacidity and hypersecretion. The former is a qualitative excess, the latter a quantitative excess, and both may be, but are not necessarily always, associated. The hypersecretion may occur only under the stimulus of food, or it may persist continuously. The latter—Reichmann's disease—is the only form of hypersecretion that has hitherto been recognized. His tests and experiences have established that in health, and even in case of dilatation of the stomach and motor incompetency, with or without hyperacidity, there is normally no spontaneous secretion of gastric juice in the fasting stomach. The author has further demonstrated that the stomach in certain cases of hypersecretion is unable to expel all its acid secretions, as the small intestine will not receive it, and there is spasmodic closure of the pylorus in consequence. This enforced retention of some of the secretion, and of the ingesta, in time produces dilatation of the stomach.

The motor functions of the stomach may be unimpaired, but the organ is unable to discharge its contents. On the other hand, motor insufficiency and hyperacidity do not necessarily entail hypersecretion, and the cure of the former is not inevitably followed by the disappearance of the latter, if it exists. Differentiation of alimentary hypersecretion is difficult. The symptoms resemble those of hyperacidity, but they are more constant and occur earlier: fifteen to thirty minutes after eating. The naked-eye aspect of the stomach content after a test breakfast is also characteristic, on account of the preponderance of fluid. It separates rapidly into two layers, the clear fluid above containing scraps of bread, while in case of motor insufficiency the whole forms an evenly turbid fluid; the specific gravity is higher, and the difference between the total acidity and the free HCl is comparatively large. In hypersecretion the difference between the figures is very small. The author cites some instances from his clinic showing that this difference under the alizarin test was 28 in a case of motor insufficiency plus hyperacidity, and only 6 in a case of hypersecretion, the amount of stomach content being identical in each. Atropine has a quantitative influence on the secretion, but associated hyperacidity persists unmodified by it. The hypersecreting mucosa may produce a gastric juice with the same proportional acidity

as previously prevailed. This explains why cases of hypersecretion without hyperacidity are liable to be encountered. The significance of the law established by Pawlow in regard to the constant acidity of the gastric juice has not been appreciated fully as yet. It explains why the cases of "pure hyperacidity" are so refractory to therapeutic measures. Many cases diagnosed as hyperacidity and treated and cured by the most diverse measures have probably belonged to this category of alimentary hypersecretion.

Treatment should be addressed to the hypersecretion as the primary factor, and every effort should be made to reduce the abnormal excitability of the stomach lining. Especially in the alimentary form of hypersecretion will the temporary exclusion of the stomach from the digestive processes be found extremely beneficial. Exclusive rectal feeding often proves very useful. The diet should be regulated carefully. An albumin-fat diet not only rests, soothes, and nourishes, but it reduces the amount of secretion, abolishes friction, and, as the quantity of acid diminishes, the secondary spasmodic contraction of the pylorus ceases. Both atropine and oil induce more favorable conditions, but neither are directly curative. Lavage of the stomach is also useful. In the continuous form of hypersecretion it is best applied just before the last meal of the day, while in the alimentary form the stomach is given the needed rest by lavage the last thing before retiring. The author never advises operative intervention on account of hypersecretion alone, as it would have no influence on the latter. F. Riegel (Deutsche medicinische Wochenschrift, volume xxx, Nos. 20 and 21, 1904).

HYPERTROPHIED PROSTATE, OPERATIVE TREATMENT OF.

The most important single factor in determining whether or not radical operative treatment should or should not be applied is the capability or the reverse of the renal function. Other than this are the general strength or feebleness of the patient, his comfort or suffering, and the probability of the continuance of the one or the occurrence of the other if operative treatment is *not* applied.

Radical operative treatment has not as yet reached the status at which we are justified in saying that all cases of prostatic hypertrophy should be submitted to it as soon as the condition is clearly made out, and has begun to give rise to slight symptoms. But the author considers himself justified in saying that patients should be given the benefit of it at a much earlier stage of the malady than it has been customary to apply it, and that, where it is applied by those skilled in its performance, as soon as the hypertrophy can be clearly detected by examination, and if at the same time it is already giving rise to well-marked symptoms, and the patient's condition is not unfavorable to the performance of an operation of this magnitude, the mortality of the operations, were they applied at that time, will be a trifling one, and their risks not nearly so great as those entailed by the use of the catheter, assuming the latter to have been employed instead and under the same conditions. The operations should be undertaken under favorable circumstances as soon as the above conditions occur.

With regard to choice of operation, the following are the writer's conclusions: Under conditions in which there is nothing to prevent a free choice

of method, the total removal of the gland by the best of the perineal technic is that of choice. When any condition is present which makes the perineal operation too difficult of performance, or is a contradiction of any sort to its application, the suprapubic operation is the operation of choice, and, when contra-indications are present which make this operation undesirable, the Bottini becomes the operation of choice, and when the patient's condition is such as to make any of the above three methods inappropriate, and something must be done, a palliative operation for drainage should be done.

Cystoscopic examination should, when it can be readily done, precede operations of all sorts in which there is any doubt as to the exact nature of the hypertrophies, and is essential to the proper performance of the Bottini. Its utility with regard to the other operations is that of learning whether or not there is present a middle lobe of such size and position as to make the perineal operation especially difficult of performance. F. S. Watson (Annals of Surgery, June, 1904).

HYSTERIA.

Certain vasomotor disturbances are found more or less frequently in hysterical cases. Generalized pallor of the body surface and flushings are part of the "splanchnic storms" which are more often found in hysterical and neurasthenic patients than in any other class of cases. The congestive patches constitute visible evidence of the reflex excitability of the local vasomotor mechanism. Erythromelalgia, dermatographia, and the exudative skin conditions are produced by the vasomotor neurosis plus toxic changes. The same etiological factors hold in regard to ischæmia. In this group of cases, however, there is a vascular spasm only.

Among the co-operating causes which are sometimes in operation may be mentioned toxins of gastro-intestinal origin, articles of diet, traumatism, and toxins of insects. Without a vasomotor instability, inherited or acquired, these cannot act. It is interesting to note that some writers believe that auto-intoxication of gastro-intestinal origin plays a most important part in the causation of hysteria. If this is so, the etiology of exudative skin conditions and of hysteria are brought close together. G. L. Connor (Journal of the Michigan State Medical Society, June, 1904).

INFANT-FEEDING, STERILIZED MILK IN.

The dangers of trusting too much to sterilized milk are pointed out by the authors, who divide bacteria in milk into three classes: 1. The nonspore-bearing, including cocci, lactic acid, coli and proteus groups, easily killed by exposure to 100°C., or heating for a short time at a temperature of a little over 90°C. Pasteurizing for half an hour also kills these bacteria. 2. The butyric acid bacilli, the anaërobic spore-bearing forms, killed by exposure for from one to one and one-half hours at a temperature of 100° C. To this group belongs Klein's *Bacillus enteritidis sporogenes*. 3. The bacillus subtilis group. These are aërobic, spore-bearing bacilli, decomposing milk with a faintly acid or unchanged condition, causing coagulation of the casein and subsequent liquefaction of the coagulum. Flügge attributes the summer diarrhœa of children largely to these "peptonizing bacilli," and has isolated twelve distinct species from samples of market milk. He concludes that most of the so-called sterilized milk on the market is unre-

liable and likely to cause harm. The authors think, if Flügge's view is right, the reproach against partially sterilized milk is serious, but most practicing physicians will be of the opinion that Group 1 is the real culprit in most cases, as boiling the milk seems to relieve the intestinal disorders of children. They have examined the specimens in milk supplied to infants from the infants' milk depot of the Leith corporation, and conclude that the designation "sterilized milk" is wrong and misleading, and would suggest substitution of the name "milk prepared for infants." Every customer should be carefully instructed as to the necessity of keeping the milk as cool as possible, especially in summer. Faith in steam sterilization should not be too implicit. In hot weather each daily supply should be sold as it is prepared. As an additional precaution, all bottles after being taken from the sterilizer should be placed in warm water gradually cooled, as the placing of warm bottles in cold water would lead to their breaking. The authors insist on the importance of cleanliness on the part of the cow-keeper as an important adjunct to the general movement for wholesome milk. William Robertson and William Mair (British Medical Journal, May 14, 1904).

KERNIG'S SIGN.

A maximum angle of 115 degrees gives more valuable results than does an angle of 135 degrees, as proposed by Kernig. The angle obtained in any individual case depends, in part, upon the force used in extending the leg, and for this reason actual measuring of the angle is not essential. The sign is present in a large percentage of the cases of meningitis; it is, however, not constant, may be transitory, or only appear late; therefore daily examination should be made for its presence. It is present in a typical manner, occasionally in a number of widely different disease conditions, and for this reason it is probable that there is not a uniform cause for the sign. The sign is occasionally unilateral, exclusive of cases of hemiplegia or local trouble, which might explain its unilateral presence. The presence of the sign in cases of suspected meningitis is merely another factor favoring the diagnosis. Its absence, especially early, is not infrequent, and should not be allowed to outweigh the positive findings. J. L. Miller (American Journal of the Medical Sciences, June, 1904).

KIDNEY, SURGERY OF THE.

The writer points out the indications for renal decapsulation, as well as the contra-indications as he understands them. The three conditions are: (1) a clear and unequivocal establishment of the presence of chronic Bright's disease, (2) absence in most cases of contra-indications to any operation, and (3) the possibility of securing the services of a competent surgeon in this particular branch. The diagnosis of chronic Bright's disease can hardly fail, with care. The form of nephritis does not enter into the question of indication or contra-indication. Good results can be obtained from operation in all varieties. As regards age, the writer has performed decapsulation on 9 patients who were 50 years of age or over; 3 of the 9 died within a week of the operation, 3 died after a longer period of time, and 1 three weeks after the operation, 1 in ten and a half months after operation, and 1 five and a half months. Only 2 of the 6 patients were benefited

by the operation. Disorders of the heart are also of importance, but cardiac symptoms have been observed to entirely disappear as a result. There is one cardinal point that should guide in advising for or against decapsulation for chronic Bright's disease in the presence of cardiac derangements, especially enlargement of the heart and degeneration of the heart-muscle. It is the fact as to whether the compensation of whatever lesion may be present is sufficiently good to warrant the assumption that the patient will safely stand the anæsthesia. The most ominous single auscultatory sign of predominant dilatation of the heart and danger of sudden death is insufficiency of the aortic valve shown by an intermittent aortic regurgitant murmur, occurring every third, fourth, or fifth beat, or less frequently. If this condition is present and cannot be relieved, the patient is very near the end of life, and operation is advised against. The presence of albuminuric retinitis is another contraindication. While the writer does not say it is absolute in cases of young persons, he would very carefully weigh all the facts before advising it. More experience is required before the last word can be said. The advantage of having a surgeon who thoroughly understands the method are obvious, and the success of the procedure will largely depend on this. The writer describes his technic, which is not especially changed, excepting that he now advises to always anchor the decapsulated kidney to the dorsal muscles. Another point is the necessity of securing healing by first intention to obtain the best results. Nephritics do not stand suppuration well. G. M. Edebohls (New York Medical Journal and Philadelphia Medical Journal, May 28, 1904).

PERICARDITIS, TUBERCULOUS.

Tuberculous pericarditis is not a rare affection. The diagnosis is usually not made except in cases with simultaneously active tuberculous processes elsewhere. The occurrence of pleurisy with blood-stained effusion may be regarded as suggestive. The pericarditis may be of a chronic obliterative type, or there may be massive effusion, generally sanguinolent, but rarely purulent. It may be acute, continuing for but a few days, or chronic, existing for many months. It may be a part of a multiple serositis, and the proportion of cases in which at least one or more of the pleural cavities are involved is remarkable.

The disease is to be regarded as a secondary affection, although from a clinical point of view some cases may be looked upon as primary. The point of origin of the infection is often found in the bronchial and mediastinal lymph-nodes, although these may be quite exempt from the disease. The infection may be direct from continuity of tuberculous tissue, or by transmission through lymph-vessels or through the circulation. The heart may be greatly enlarged, or normal in size, or even somewhat small. Some observers believe that occasionally the process subsides and that comparative cure results. C. G. Stockton (American Medicine, June 11, 1904).

PNEUMONIA, POSTOPERATIVE: PROPHYLAXIS.

The following conclusions seem justifiable and may be defended: Care in ether-giving lessens shock and respiratory irritation, which reach their maximum when an unnecessarily large amount of ether is given. The disinfection of the mouth and oropharynx by peroxide before operation is a rational

precaution. Adequate air-space is of even greater importance in surgical wards than in medical. A careful auscultation and percussion of the chest should precede every operation, and, if there be signs of disease, operations of election should be postponed until the chest condition is more favorable. A complete clinical record of all cases of postoperative pneumonia, together with a record of the previous state of the patient, is most desirable, and such records will in time greatly enrich our incomplete knowledge of the factors which predispose to the complication. It is posible to demonstrate experimentally the lessons produced by suffocation and etherization, and the same philosophy which explains postoperative pneumonitis may be applied to that which occasionally follows poisoning by carbon monoxide and illuminating gas. W. L. Chapman (Annals of Surgery, May, 1904).

PROSTATE, PRIMARY CARCINOMA OF.

The writer states that a study of carcinoma prostatæ leads to many conclusions, of which the following may be premised:—

This disease is sufficiently common and so frequently unrecognized—mistaken for simple enlargement—as to actuate more intelligent and acuminate clinical observation upon all elderly men. Exclusion of cancer and watchfulness of its development in all cases of hypertrophy are indicated. The doctrine that "prostatic hypertrophy is at all times easy of diagnosis" should be modified.

Cancer of the prostate is most distinctly operable before metastasis has taken place to regional or remote organs, and as distinctly inoperable after secondary vesical, glandular, and skeletal invasion. The high percentage of operative cures reported from the French clinics presages a promising future.

Radical operation should prescribe liberal perineal exposure of the prostate with preliminary exploration of the bladder and periprostatic structures, and total intracapsular enucleation—urethro-prostatectomy. Prostatectomy *per se* is procrustean.

There is opportunity for further pathological investigation,—particularly the careful postmortem examination of all senile prostates,—for systematic clinical observation, and for operative improvement. It will be interesting to become better acquainted with the actual frequency of prostatic cancer, with the possibilities of early diagnosis, with the osseous phenomena and blood-changes, and with the possibilities of surgery as a radical curative measure. George W. Hawley (Annals of Surgery, June, 1904).

RADIUM-RAYS ON THE HEALTHY AND BLIND EYE, THE ACTION OF.

Greeff speaks of the peculiarity of radium, that it can emit rays in the dark which are indirectly visible to the naked eye (Deutsche medicinische Wochenschrift, March 24). This power of transmitting rays appears to go on indefinitely and without diminution, and in this respect, as well as in others, the law of preservation of energy seems to be contradicted. Professor London published some time ago an article which offered a hope for the blind, that by means of radium they might be made to see again, and Greeff has studied the question closely. His experiments were carried out with a mixture of barium chloride and radium chloride, weighing about 1 gramme, and containing

about 0.02 gramme of pure radium. The illumination of radium in the dark as appreciated by the healthy eye consists in two kinds of light-action: first, a sort of fluorescence imparted to other objects, which emit indirectly ordinary light-rays; and, second, the peculiar rays, which are known as radium-rays. Professor London obviously did not distinguish between these two kinds of light-action. The former is produced by certain rays falling on certain objects, such as paper or barium cyanurate and platinum, and the light emitted from these objects is incapable of passing through objects which are opaque to ordinary light. The direct rays of radium are perceived after the eye has become accustomed to the dark, if one approaches the eye to within about 10 centimeters of the radium. The eye then distinguishes a diffuse, peculiar sea-green haze. One cannot localize the direction of this haze of light, but the light-effect becomes very intense when the radium is held close to the eye. These rays can pass through all interposed objects, such as silver coins, the hand, and thick plates of steel. No distinction of bones and soft parts can be perceived when the hand is interposed, and even when the radium is placed over the temple the effect is precisely the same as it is when it is held the same distance in front of the eye. The most reasonable explanation offered for this phenomenon is that the radium rays falling on the various portions of the eye, and especially the lens and the vitreous, produce the same fluorescence as is seen on the paper, and that the appreciated light is the indirect effect of this fluorescence. In dealing with the blind, Greeff points out that London does not state the exact condition of blindness which he hopes to cure. Total blindness cannot perceive radium-rays any more than ordinary light can produce an effect on such eyes. Greeff's experiments were conducted in the same manner as London's were, and the results carefully controlled: But he first tested the vision of his "blind" patients. He found that, although eyes which are not quite blind can perceive large objects in indistinct outline against the fluorescent screen, they do not see in this light, which is but ordinary visible light, any better than any other reflected light, and that there is not a vestige of hope that any blindness can be in any way influenced by radium-rays. (British Medical Journal, May 28, 1904.)

SKIN DISEASES, DIETETIC TREATMENT.

The writer claims that dietetic measures are of the greatest importance for the cure of various cutaneous affections. Psoriasis, for instance, is unmistakably benefited by refraining from meat. Cheese is liable to aggravate certain skin diseases or possibly induce them. All kinds of erythemata and rashes with exudation are benefited by calomel purges, followed by a course of mineral waters. Salicylic medication is a valuable adjuvant. The salicylic acid seems to attack the morbid process like an antitoxin, and paralyze the evil effects of the poisons circulating in the blood. The subject must learn what articles of food he must avoid, and should strive to eat at regular intervals and in small amounts. A single hastily eaten meal when he is overfatigued, overheated, or irritated may affect him like ingesta containing ptomaines. In case of prurigo the nervous system must be soothed and sleep restored. Eczema frequently develops after the prurigo, and both may be avoided by keeping the

bowels in good order, avoiding excess of bread and potatoes, and all other causes tending to induce flatulence. Prurigo patients are usually constipated, with hard stools. The tendency to furuncles and phlegmons in diabetes and gouty subjects may be combated by putting the patients on a sugar-starvation diet. So soon as all substances are avoided that form or become transformed into sugar, the tendency to furuncles subsides. The excess of sugar in the tissues affords fine culture media for the pyogenic germs. When this excess is avoided the germs cease to colonize in them, irrespective of whether the elimination of sugar is physiological or pathological. The same reasoning and conclusions apply also to uric acid in gout. Any intoxication may affect the skin and reduce its resisting power. The writer defines scrofula as a lesser resisting power due to inherited weakness and insufficient nourishment or care, and insists that everything which tends to enhance the resisting powers aids in curing the local affection. Obese subjects should diet to reduce their weight, and by this means avoid cutaneous lesions from friction between folds of the skin, etc. O. Lassar (Dermatologische Zeitschrift, volume xi. No. 3, 1904).

SLEEPLESSNESS, NATURE AND TREATMENT OF SOME FORMS OF.

The causes of sleeplessness are varied, but they must all be looked for in some irritative disturbance affecting the central nervous system. The disturbance often is cerebral, cardiac, or gastro-intestinal in origin, but at times its precise source may not be obvious. Sleep may be affected in several ways, somewhat in accordance with the disturbing influence. In the first place, the patient may lie awake for hours and finally fall asleep, as is common in neurasthenics; or he may have no difficulty in falling asleep at once, but awakes early, as is often the case in the aged; or he may fall asleep readily and in a short while be awakened suddenly, usually with a sense of fear and slight oppression of the chest and almost always with palpitation of the heart—this is characteristic of cardiac disorder. Some interesting observations on this last variety are recorded by Dr. Leopold Feilchenfeld (Berliner klinische Wochenschrift, March 14, 1904), in whose opinion it is to be attributed to weakness of the heart-muscle, with derangement of compensation. He has noted that sleep occurs most readily when the patient lies on the left side, but it is likewise terminated most rapidly under the same conditions. The apex-beat is extended and displaced to the left, the pulse becomes small and frequent, and symptoms of dyspnœa set in. It is probable that transitory dilatation of the heart takes place from interference with the circulation of uncertain character. Sometimes the symptoms develop when the patient occupies the dorsal decubitus. As to treatment, it is to be remembered that sleep may be prevented or interrupted at any stage in accordance with the presence of flatulence, pressure on the heart, cerebral congestion, or excessive peristaltic activity. Relief will usually be afforded by free evacuation of the bowels and moderation in diet, especially in the last meal of the day. Insomnia is often a habit and, in cases of neurasthenia especially, the vicious circle must be broken up and sleep induced for several nights in succession. This end may be attained by the administration of small doses of some harmless hypnotic, as sulphonal and the like. Of sulphonal, for example, about 4

grains may be given two or three times in the course of the afternoon. He even recommends the use of morphine in very small doses to secure sleep at first, but this is an exceedingly dangerous suggestion. There is danger that the last state of the patient may be worse than the first. If the physician has a suitable patient under his complete control and is able to minimize the risk of the procedure, $^1/_{25}$ grain of morphine hydrochlorate may be given in combination with small doses of digitalis, $^1/_4$ grain, given at night. Of course, in addition to the measures indicated other hygienic procedures should be instituted, including, especially, hydrotherapy. Editorial (Journal of the American Medical Association, May 28, 1904).

SPEECH DEFECTS.

It is strange that so little attention has been given to the study of the causation of the defects of speech. If the older authorities are grouped according to the views they have held of etiology of speech defects they can be assigned to one of the following classes: 1. Those who believe the cause of defective speech to be the tongue, tonsils, larynx, and palate. 2. Those who held the theory of psychical causation and who generally aimed at education of the will-power to overcome the defect. 3. Those who considered the essential causal feature to be a deranged nerve-center, or lack of strength in the co-ordinating powers. The more modern authorities on this subject seem to consider the various causes that have been enumerated, but they pay particular attention to abnormities of the upper air-passages and their correction, followed by proper respiratory and vocal exercises. Among the primary causes first observed in children are fear, timidity, a fall, or ill treatment. Imitation lies at the bottom of many conditions, as in children this faculty seems to be more highly developed than at any other period of life. J. M. Brown (Journal of the American Medical Association, May 28, 1904).

STERILIZATION OF THE HANDS.

Even after the most prolonged and energetic washing of the hands in soap and hot water, it is not possible materially to diminish the number of microbes on them. The same conclusion holds good whether sea-sand, marble-dust, or Schleich's soap be employed.

There is no advantage to be gained by unduly prolonging this washing process, as the hands never become sterile, and, owing to the loosening of the epidermis, generally appear more infected after than before the washing. Neither is there any advantage offered by the use of soft soap or soap containing an excess of free alkali. Any increase in detergent action is more than counterbalanced by its irritating effect upon the skin.

The water should be used as hot as it can be borne, and it should be frequently renewed. After washing, the hands may, with advantage, be rubbed with a dry, rough, sterile cloth to assist in the removal of the superficial cells of the epidermis. The use of turpentine, benzoline, or xylol during or after the washing with soap and hot water does not appreciably improve the results. The aqueous solutions of carbolic acid, lysol, perchloride or biniodide of mercury are practically powerless to affect the micro-organisms situated on the hands, and the use of these antiseptics after a thorough preliminary washing of the hands utterly fails to render them sterile. The use of a sat-

urated solution of permanganate of potash, followed by the application of strong oxalic acid (Kelly's method), gives wholly inadequate results. The bacteriological power of the new antiseptic "sublamin" is considerably below that of perchloride of mercury, and, as a sterilizing agent for the hands, is of little value, and cannot be compared in efficiency with the alcohol-sublimate method of Fürbringer, which it was introduced to supplant. The combination of an antiseptic like lysol or biniodide of mercury with a soap does not increase the power of the antiseptic, but rather tends to lower it. Such soaps are practically valueless for the cleansing of the hands.

Alcohol possesses a remarkable power of sterilizing the hands, far surpassing that of all other agents. In order to obtain the full benefit of the spirit method, it is necessary to employ the alcohol for from four to five minutes; and the whole procedure must be carried out with vigor and intelligence. Unless the hands are in an exemplary cosmetic condition, good results cannot be obtained by any method. A roughened or chapped hand does not admit of disinfection.

As the result of the writer's experiments, he is forced to conclude that, though the spirit be employed for not less than five minutes, and the hands be in an exemplary cosmetic condition, yet a perfect sterility cannot be obtained, and, in a considerable proportion of cases, the hands are still surgically infective. When the hands have been recently infected with septic matter, the likelihood of their being rendered sterile is greatly diminished.

Spirit soap is greatly inferior to plain alcohol as a cleansing agent; and the addition of biniodide of mercury or lysol to this soap does not materially increase its value. The power which alcohol possesses of sterilizing the hands is principally due to its property of hardening and fixing the superficial cells of the epidermis; in addition to which it has a marked bactericidal action. With the exception of absolute and very high percentages of alcohol, the spirituous solutions of antiseptics (perchloride of mercury) are markedly superior to the aqueous solutions in sterilizing power. The efficiency increases in direct ratio to the percentage of alcohol in the solution up to about 70 per cent., when any further increase in the proportion of the alcohol causes a reduction in the sterilizing power of the antiseptic.

It is an advantage to replace the watery antiseptic solution in Fürbringer's method by 70 per cent. sublimate-alcohol. It is a more powerful bactericide, and it does not reduce the hardening of the epidermis by the previous alcohol.

Of all the methods tested, the best results were obtained by the following modification of Fürbringer's process: (*a*) The hands are first scrubbed for five minutes with soap and very hot water (about 50° C.), the water to be frequently changed. The use of sterile sea-sand as an addition to the nailbrush is an advantage. (*b*) The hands are then rubbed with methylated spirit for three minutes. (*c*) Afterward scrubbed for a minute or two with 70 per cent. sublimate-alcohol (1 in 1000). (*d*) And finally rubbed until dry and polished with a sterile cloth.

Hands which have proved practically sterile directly after the cleansing process gradually become more and more infective, as, under the imbibition of the water, the alcohol-hardened epithelium is loosened. As no method of cleansing

the hands guarantees sterility, it is desirable that impermeable gloves be worn when the nature of the operation permits, whether the wound be aseptic or septic. In the former case they protect the patient, in the latter the surgeon, from risk of infection. Where gloves cannot be tolerated on account of the loss of tactile sensation they cause, the epidermis of the hands may be protected to some extent from direct contact with septic matter by a thin layer of hard paraffin.

A period of abstention from operative work, after contact with especially virulent septic matter, is desirable. Charles Leedham-Green (Birmingham Medical Review, June, 1904).

TESTIS, IMPERFECTLY DESCENDED, VALUE OF OPERATIONS FOR RELIEF OF.

Orchidopexy is only applicable in mild cases of imperfectly descended testis, and perhaps even then it may not often be called for.

Orchidectomy is only justifiable under special pathological conditions; for example, torsion, severe neuralgia, extreme atrophy, and so forth, and in older cases—that is, after the occurrence of puberty and a possible and problematical period of testicular activity and spermatogenesis has passed, say, from 23 upward.

Replacement in the abdomen is indicated in by far the majority of cases, and should be always done before puberty and, perhaps, up to the age of 20 or thereabouts. It would appear that, the earlier the operation is performed, the better should be the result.

No operation may be called for in mild cases when the testis is close to the bottom of the scrotum or when the testes are abdominally retained.

Operative interference is demanded in most cases on account of the secondary changes of an inflammatory and sclerotic nature in the testis, which the position of imperfect descent leads to. Again, there is the frequent coexistence of a hernia with this condition. And in cases where it does not often or has never previously come down, the narrow opening or neck of the sac may cause one of the most dangerous varieties of strangulation. E. M. Corner (British Medical Journal, June 4, 1904).

TUBERCULOSIS, EARLY DIAGNOSIS OF.

Many of the symptoms formerly classed as early really belong to the more advanced stages. Cough, expectoration, and hæmorrhage do not occur early in the disease. Emaciation and muscular weakness are the first constitutional symptoms in more than 90 per cent. of all cases. Harsh respiratory sounds are the earliest local symptoms in 95 per cent. of all cases. Except for the early leucopenia and anæmia pure tuberculosis has little effect upon the blood.

The value of Koch's tuberculin, conservatively used, cannot be overestimated. Diagnosis by bacteriological examination can only be made after there is disintegration of the tubercles and free communication between a diseased area and a bronchus established. By the time the bacilli appear in the sputum the disease is in an active stage, and there is considerable breaking down of tissue. At this time the treatment can only be palliative, and there is but little hope of effecting a cure, though the unfortunate victim can be prevented from becoming a source of danger to his associates. W. H. Darling (Northwestern Lancet, May 15, 1904).

TUBERCULOUS DISEASE, THE INFLUENCE OF GROWTH ON THE DEVELOPMENT OF.

If there is a disease upon which the influence of growth is evident, it is certainly tuberculous disease, and in the large majority of cases this disease appears during the period of adolescence. In endeavoring to ascertain the part played by growth in the etiology of ordinary tuberculous diseases the following facts are to be noted, namely: that growth prepares the soil and it may also be an active pathogenic element. When the infection exists in a latent form, growth may stimulate the bacillus to activity, and the conditions to which it may give rise open the door to the specific agent of the disease.

Growth certainly has such a marked action on tuberculous disease that it not infrequently happens that the evolution of the bacillus is subordinated to that of growth. When a child's development is moderate, or should it become arrested, the subject may regain his health; but when, on the contrary, it becomes exaggerated, it appropriates all the nutritive material, so that the subject does not have a sufficient amount with which to repair the losses his body undergoes from the havoc produced by the disease. It is a well-known fact that during acute diseases growth may impoverish the organism to such an extent that it becomes an easy prey to the invasion of tuberculous disease.

Let us take the ordinary case as typical of what occurs in the poorer population of all large cities. A woman gives birth to several children. For some years she has coughed and finally dies, at about the age of 30, of tuberculous disease. What becomes of her children? Some will maintain that the generative cells of the child possess a physiological *manière d'être*, and will evolve in the same manner as those from which they have been derived; consequently, the same conditions of soil that have allowed the parent to become tuberculous continue in her descendants. Others would say that the child had simply been infected by the mother. The possibility of the bacilli passing from the mother to the child via the placenta is at the present time absolutely demonstrated, and undoubtedly the existence of placental lesions would be invoked, but the experimental fact, for all that, remains. Leaving aside all discussion of these theories, it must be admitted that they both contain an element of truth.

A child born of a tuberculous mother comes into the world without being infected, and, when carefully cared for, the first few years of its life will be gone through without any symptoms, but often at about the age preceding puberty the nutrition will become more or less impaired. This is shown by the facies and general appearance of the child. Puberty then comes and the subject begins to grow rapidly, and it is just at this time that the state of his inherited nutrition, which has remained in a latent condition since birth, begins to manifest itself. Now, in point of fact, at this period one will remark that the child is not in a condition which will be functionally sufficient for his development; he grows, but remains thin and becomes weak.

It is at this time that children are overworked because they are being armed for the struggle for life. It is still time enough to avoid the misfortune which is a menace to the child, and he may be prevented from becoming infected if his studies are stopped and if he is sent to the country where he may

be able to indulge in moderate exercise and receive food appropriate for his condition.

Unfortunately, a number of opposing causes for attaining this end exist. In the first place, there is the poverty or the material impossibility of doing for the child, but there are also many prejudices on the part of parents and their lack of insight when told that their child is a candidate for tuberculous disease; it therefore results that the disease at length develops. To send a child to the country and thus oblige him to leave his work is simply an avowal that he is physically inferior to his little friends, and vanity on the parents' part will oftentimes clash with proper reasoning. "He will do like other children," they say, and he consequently continues his life in bad hygienic surroundings. Parents will administer medicine, which after a certain time causes dyspepsia; gymnastics are ordered, which only fatigue the child, because it is simply an output of strength added to all the others, to which he is unequal. Predisposed, the child may not have any other disease, but he presents a soil marvelously prepared for infection. The more he grows, the more these causes become intense, and when the child takes cold or is attacked with bronchitis the tubercle bacillus finds an open door to receive it and develops with all the greater ease because it finds an old friend in this hereditary soil. From this time on the child is tuberculous, and growth, with all the other accomplice causes which go with it, contributes powerfully to denutrition. Now, general pathology teaches us that denutrition is everything in the evolution of tubercle bacilli, and it is this which makes a tuberculous subject a phthisical one.

Let us suppose, on the contrary, that the child has been born infected and that he has presented no symptoms during infancy. Under the influence of the various causes which have been enumerated, it is an easy matter to admit that growth and its complications cause the bacillus to come forth from its latent condition and give to it, at the same time that it receives a new vitality, a special localization. From this there result tuberculous lesions of the bones and joints, so frequent during early childhood, and they are simply different stages of infection. In point of fact, so long as the bones are in a state of development, Koch's bacillus prefers them particularly and disdains the lungs; the tuberculous process remains localized and can be successfully attacked before becoming generalized. All this is not merely theoretical, because experimental work has furnished us with precise facts relative to the point.

Taking as an example a child that has become tuberculous because he was growing, what is his destiny? Clinical observation shows that the evolution of tuberculous disease has an intimate relation to growth, and to be convinced on this point it is quite sufficient to compare such disease in subjects not in the period of growth in order to recognize the part played by the latter. Beyond this period, under ordinary conditions, the progress of the disease is slow, and those who can care for themselves may live indefinitely. The disease has periods of arrest and remissions, but a cure is far from being infrequent. It is distant from the writer's thought to maintain that tuberculous disease arising during the period of growth cannot be cured, because successful outcomes of this kind are no

longer to be counted. It is, however, essential to point out those cases in which growth, although the cause of all, appears to become repentant and then becomes a salutary factor, even an agent of cure. This action should be likened to that which is so frequent after acute infectious diseases, especially typhoid fever. But in order that this condition of affairs shall reign, it is necessary that the soil shall not have become weakened and that the digestive tract retains a perfect integrity, and also that the patient finds in his alimentation, not only the elements necessary for his nutrition, but those requisite for repair as well. Thus it may be explained why forced feeding, when rightly conducted, may result in a cure, or at least improvement, in some cases of tuberculous disease.

Growth is a power of great intensity when it can be directed right, and may repair the damage it has caused, but unfortunately this is the exception. However, it may also be admitted that there are few subjects presenting the required conditions. Generally speaking, the inexorable fatality of social position controls everything, but often, also, by a bitter irony those who have it in their power lack the energy or will to submit to the exigencies of a life necessary for tissue repair; or, on the other hand, when they do submit to it the golden hour is lost. During the evolution of tuberculous disease the end of growth is like a dangerous cape to be rounded, and many are wrecked in the undertaking. Those who safely navigate through the troubled waters and who have sufficient strength remaining have overcome one of the greatest obstacles to their cure. C. G. Cumston (Editorial, New York Medical Journal and Philadelphia Medical Journal, June 4, 1904).

TYPHOID FEVER, THE RELATION OF, TO TUBERCULOSIS.

While it is important to recognize these two leading affections when combined, remembering the extreme rarity of the association, it becomes a matter of greater clinical importance to distinguish between typhoid fever and the various forms of acute tuberculosis, since they are so commonly confused with one another. Acute miliary tuberculosis may similate typhoid fever so closely as to offer the greatest clinical difficulty. The absence of the Widal reaction, of the characteristic eruption, and of the comparatively slow pulse in miliary tuberculosis are to be especially noted. On the other hand, in cases in which strong suspicions of the existence of acute miliary tuberculosis are entertained, a careful search for tubercles in the choroid, and tubercle bacilli in the blood and sputum (if there be any), is to be carried forward. C. Loeb (Archives of Ophthalmology, volume xxxii, pages 453-469, 1903) has recently emphasized the value of ophthalmic examinations in the differential diagnosis between typhoid fever and acute miliary tuberculosis. The personal history is often most helpful. In doubtful cases an attempt should be made to cultivate the typhoid bacilli from any suspicious eruption that may be present. There are not a few cases in which a positive diagnosis, however, must be withheld, for lack of discriminating features. J. M. Anders (American Journal of the Medical Sciences, May, 1904).

URETER, EXTRAPERITONEAL ROUTE TO THE.

The method adopted by the writer consists in an incision four inches long near the lower end of the rectus, ex-

tending upward from its insertion, parallel with its fibers. Then the muscle is divided longitudinally by blunt dissection through the middle, and, the fascia below the semilunar fold of Douglas being divided, the peritoneum and its fatty layer come into view. The lower ureter is then exposed extraperitoneally in the following way: The bladder and its fatty covering in the portion of the wound are pushed upward and inward, and the peritoneum separated from the abdominal wall as far as the ilio-pectineal line. The index finger then enters the pelvis at the side of the bladder, pushing upward and inward the fold of peritoneum known as the lateral false ligament of the bladder. After passing the finger well down to the base of the bladder, the separation of the peritoneum from the pelvic wall is carried posteriorly as far as the vas deferens. The fascia here is loose. The vas deferens is a good dividing line for the pelvis, as passing down on its outer wall it lies midway between the symphysis and the center of the sacrum. It passes inward over the obturator and recto-vesical fascia to the posterior wall of the bladder, passing above the ureter. Where a ureteral catheter has been introduced or a stone has lodged in the lower ureter, there will be no difficulty in locating it. Where these do not exist, it becomes necessary to have some guide. If the vas deferens is followed about two inches onward from the point of crossing the obturator vessels the ureter will be found just behind it. This point is from $^3/_4$ to 1 inch from the point where the vas deferens turns inward to the bladder. The vas deferens and ureter are both raised with the peritoneum when dissection is made. The ureter is freed from the delicate fibers which bind it to the peritoneum and is brought clearly into view. Some 3 or 4 inches may be examined, and the index finger can follow it to the brim of the pelvis. The advantages are: It is extraperitoneal, and avoids the danger of peritoneal infection. The opening is directly over the route of the ureter, and offers a good view of that organ through the small cut. It allows of thorough palpation, through the peritoneum, of both kidneys and ureters, and an exposure of the ureter on the side of the incision for extraperitoneal operation on its lower end. In many cases thorough palpation may be desirable. There is a bloodless field of operation, and no forceps are in the way. Drainage is usually necessary after opening the ureter, which may be carried through the lower end of the rectus, and does not leave the prospect of hernia that a para-Poupart incision does. Dissection is not difficult, and may be carried out by any reasonably prepared surgeon. T. C. Witherspoon (New York Medical Journal and Philadelphia Medical Journal, May 21, 1904).

URINARY BLADDER, TUBERCULOSIS OF THE.

The writer summarizes his advice concerning the treatment of tuberculosis of the bladder as follows: If other tuberculous lesions of the genito-urinary tract exist, their operative removal is sometimes followed by improvement, and even cure of the process in the bladder, provided the patients are placed under the most favorable hygienic surroundings. Operative treatment of the bladder alone in the presence of tuberculous lesions of other portions of the urinary tract is usually harmful rather than beneficial. The local treatment of the tuberculous bladder by means of injections or

applications through the urethra is generally useless and often very deleterious. The internal administration of the drugs known as urinary antiseptics is generally useless. Palliative operations, such as suprapubic drainage, may be useful in advanced cases. The general or hygienic treatment, suitable climate, out-of-door life, etc., offer these patients the best hope of recovery. Such hygienic measures should be preceded by the operative removal of tuberculous foci in the kidney, the epididymis, the prostate, and the seminal vesicles, if such exist and the patient is still in sufficiently good condition to bear the operative procedure. In those rare cases where the bladder alone is affected over a moderate area only, the operative removal or destruction of the diseased tissue may be followed by improvement and even cure. A. B. Johnson (Medical News, May 14, 1904).

UTERUS, FIBROID TUMORS OF, APOSTOLI TREATMENT IN.

A prolonged observation of cases of fibroid tumors of the uterus under the Apostoli treatment teaches that three-fourths of the cases subjected to the method will be practically cured, as attested by inquiries made from three to sixteen years after the cessation of treatment. The cases that responded poorly, or not at all, to this treatment are not harmed by it, when properly applied, and heroic measures may then be adopted with the certainty that milder means are of no avail. Hæmorrhagic and interstitial fibroids are best adapted to the Apostoli treatment, while subperitoneal or degenerative fibroids and those complicated with pyosalpinx are least adapted to be relieved by it.

So far as the author's inquiries show, there have been but 7 deaths among 110 patients during the sixteen years or less that they have been under his observation. It is an interesting fact, moreover, that but 1 of these deaths was due to the progress of the growth itself, proving the nonmortal character of this affection. Of the remaining 6, 1 died long after treatment of an affection totally unconnected with the growth, 1 of septicæmia under electrical treatment, and 4 while being operated on with the knife. G. Betton Massey (Journal of the American Medical Association, May 21, 1904).

VALVULAR AORTA, CONSTRUCTION OF THE.

The elasticity and ductility of the aorta depend upon three factors: on the network construction of the elastic fiber systems of the media, on the elasticity and great yielding power of the collagenous substance, and on the great elasticity and moderate ductility of the elastic elements. The elastic elements can only in their combination as a construction be considered as the carriers of ductility. They are themselves highly elastic, but have relatively little yielding power, and their function is first of all to prevent exaggerated distension. The other fibres of connective tissue are either very ductile, as, for instance, in the semilunar valves, or they are more tendinous, unyielding, as in the valvular ring. The elastic ligament on the ventricular side of the semilunar valves is probably not only made to strengthen, but in connection with the elastic endocardium it could be considered as a steering apparatus for the position of the semilunar valves, and in combination with the main part of the valves it forms the joint at the

base of the same. Nature appears to make use of the elastic-mesh tissues whenever there is any initially large ductility desired, and where afterward elastic inhibition is necessary. Fritz Schwyzer (New York Medical Journal and Philadelphia Medical Journal, May 28, 1904).

VESICAL RETENTION OF URINE.

When danger to life is not imminent, the domestic methods ordinarily employed may relieve the vesical retention, provided no mechanical obstacle exists. Diuretics, diluents, and antispasmodics are of no use in vesical retention of urine. Opiates and general anæsthesia are useful only under certain circumstances. Capital surgical intervention may be necessary to cure the basic condition, but the urgent symptoms can, in most instances, be relieved without life-endangering procedures. Even the youngest general practitioner can carry every case of vesical retention of urine to a successful issue. The cause of the retention must in each case be ascertained. Only most exceptionally does a case present which cannot be relieved by minor procedures. No bladder should be suddenly entirely emptied because of the danger of hæmorrhage *ex vacuo*. F. C. Valentine and T. M. Townsend (Medical News, June 18, 1904).

Books and Monographs Received.

The editor begs to acknowledge, with thanks, the receipt of the following books and monographs:—

Annual Report of the Surgeon-General of the Public Health and Marine-Hospital Service of the United States. For the Fiscal Year 1903.——Year-book of the United States Department of Agriculture. 1903.——Anatomy of the Inferior Ethmoidal Turbinate Bone with Particular Reference to Cell Formation; Surgical Importance of such Ethmoidal Cells. By Howard A. Lothrop, Boston, Mass. 1903.——The Deficient Urea-Excretion in Gout and Lithæmia. By R. K. Macalester, Glenwood Springs, Colo. 1904.——The Nonoperative Treatment of Chronic Ovarian Lesions. By D. H. Craig, Boston, Mass. 1904.——The Prevention of Postoperative Intestinal Paresis and Adhesions. By D. H. Craig, Boston, Mass. 1904.——The Dangerous (?) Operation of Uterine Curettement. By D. H. Craig, Boston, Mass. 1904.——Tertiary Syphilis of the Nose and Pharynx. By W. Scott Renner, Buffalo, N. Y. 1904.——Clinical Observations on the Treatment of Anæmia in Children. By A. M. Fendler, New York. 1904.——A Plea for Justice to the Consumptive. By S. A. Knopf, New York City. 1904.——Radium, Radioactive Substances, and Aluminium, with Experimental Research of the Same. By Myron Metzenbaum, Cleveland, Ohio.——Specimen of Pseudarthrosis, or False Joint, of the Ulna. By Myron Metzenbaum, Cleveland, Ohio. 1904.——Guaranteed Milk for Clinical and Domestic Purposes, being a Report of a Commission of Physicians upon Walker-Gordon Guaranteed Milk. New York. 1904.——Notes de Voyâge Relatives Aux Cliniques Oto-Laryngologiques du Nord de l'Europe (Danemark, Etats Scandinaves, Russie). Par le Dr. Louis Bar, Nice, France. 1903.——Otite Externe Hémorrhagique. Par le Dr. Louis Bar, Nice, France. 1903.——Strawberries. By L. C. Corbett. United States Department of Agriculture, Washington, D. C. 1904.——Corn Growing. By C. P. Hartley, United States Department of Agriculture, Washington, D. C. 1904.——Wheat Production and Farm Life in Argentina. By F. W. Bicknell, United States Department of Agriculture, Washington, D. C. 1904.——Statistical Matter Relating to Principal Crops and Farm Animals, Freight Rates, Exports, etc., of the United States, 1903. United States Department of Agriculture, Washington, D. C.——Importation of Game Birds and Eggs for Propagation. By T. S. Palmer and Henry Oldys. United States Department of Agriculture, Washington, D. C. 1904.——Alfalfa and Beef Production in Argentina. By F. W. Bicknell. United States Department of Agriculture, Washington, D. C. 1904.——Cross-Tie Forms and Rail Fastenings, With Special Reference to Treated Timbers. By Hermann von Schrenk. United States Department of Agriculture, Washington, D. C. 1904.——Alfalfa Seed. By Edgar Brown. United States Department of Agriculture, Washington, D. C. 1904.——Fruit Trees Frozen in 1904. By M. B. Waite, United States Department of Agriculture, Washington, D. C. 1904.

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THE PHYSIOLOGICAL ACTION OF DIGITALIS AND THE SECRETION OF THE ADRENALS.

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IN THE MONTHLY CYCLOPÆDIA for July I commented upon the statement made at the recent meeting of the American Medical Association that digitalis had "probably done more harm than good" owing to its promiscuous use in heart disease. Evidence was adduced to show that this lamentable state of things was due mainly

to the recognized fact (Langley, Porter, Stewart, and others) that the mechanism of cardiac inhibition was unknown, and to the prevailing belief that the drug itself acted upon the heart-muscle. My own conception of the physiological action of this valuable remedy differing totally from that of other therapeutists, I venture to submit the main features of my view and a portion of the experimental evidence upon which it is based.

The cardinal effects of digitalis are, as is well known, a marked increase in the power of the cardiac contractions and a decided rise of the blood-pressure. How are these effects produced?

Therapeutists are in accord as to a direct action of the drug on the heart-muscle. This belief is based mainly upon the direct action of a solution of some active principle of the drug upon hearts detached from the body. Hebdom,[1] for instance, found that digitalin acted on an isolated heart when a 1 to 50,000 solution was used. But can we assert that a corresponding dose in man will act in the same way? The minimum estimate of the quantity of blood in the body of an adult is 13 pounds; *i.e.*, 100,000 minims. This quantity would thus have to contain a *full grain* of digitalin to react directly upon the heart, granting that no waste occur either in the stomach, intestines, liver, or blood before reaching that organ. Now, $^1/_4$ grain of Merck's digitalin, according to Wood, "represents the full therapeutic dose." In the blood this would make a solution of 1 to 200,000, which is inactive on the detached heart. Again, if the view that the drug acts directly on the heart-muscle were sound, the hypodermic use of a sufficient quantity to make Hebdom's 1 to 50,000 solution should at least be required. In truth, a dose thus administered and making a solution in the blood *but one thirty-second as strong* as this, is a powerful one. Thus, Deucher[2] found that a dose of digitalis given hypodermically produced the same effects as a dose four times as great administered by the mouth. Inasmuch as $^1/_4$ grain of digitalin is stated by Wood to produce the full therapeutic effects of the drug, $^1/_{16}$ grain should thus provoke equivalent effects hypodermically. This is equal to a 1 in 1,600,000 solution in the blood mass. And yet this does not allow for diminution of the dose in the latter. Can we consistently admit, in view of the antitoxic properties of the blood which underlies immunizing processes now engaging the attention of the whole scientific world, that a glucoside will suffer no chemical change? Even if defibrinated blood-serum be used as a menstruum for digitalin in experiments, such as Hebdom's, on the isolated heart, the environment of the drug is greatly modified through the absence of blood-cells, fibrin, etc. Thus variation of temperature provokes precisely contrary effects. Masi showed that, while digitalin arrests the frog's heart in *systole* at the normal temperature, at a lower one it arrests it in *diastole*. Moreover, how do we know that the supposed direct action of the drug will always manifest itself on the mammalian heart as it does experimentally on the batrachian? Masi found that at identical temperatures digitalin arrested the frog's heart in diastole and the mouse's heart in systole.

This evidence, to which much could be added, distinctly shows, it seems to me, that it is not by a direct action on the heart-muscle, as is now generally believed, that digitalis increases the energy of the contractions. In truth, the action of this drug has remained obscure. "In our experiments upon the mammalian heart,"

writes H. C. Wood, "we have seen in the final acts of digitalis drama happenings so curious and unexpected that at present no proposed theory as to the action of the drug is sufficient."

In the light of my own researches, the increased power of the cardiac contractions should be attributed mainly to a direct action of the secretion of the adrenals on the heart-muscle.

Over fifty years ago Brown-Séquard[3] emphasized the importance of the *venous* blood in cardiac dynamism. While recognizing that arterial blood took part in the process, he contended that the contractions were due to the stimulating action of the blood which reaches the heart in the venæ cavæ. The belief that the CO_2 in this blood was the energizing agent, however, soon caused this view to be antagonized successfully. But more recent investigations sustain Brown-Séquard's contention. Oliver and Schäfer[4] and others have shown that intravenous injections of adrenal extract produce "a powerful physiological action upon the muscular system in general, but especially upon the muscular walls of the blood-vessels, and the *muscular wall of the heart.*" Dreyer[5] found that the blood derived from the suprarenal veins provoked effects similar to those caused by intravenous injections of adrenal extract. My own[6] researches showed that the secretion of the adrenals, which reaches the heart in the blood of the inferior vena cava, penetrates into the myocardium by way of the Thebesian foramina and that it plays a leading part in cardiac contraction.

This unbroken anatomical and physiological connection between the adrenals and the heart (the secretion inevitably reaching the heart, since it is secreted into the inferior cava by the suprarenal veins, the only available channels) accounts for a feature of the problem which so far has escaped notice; viz., that the effects of digitalis are identical with those of suprarenal extract. Wood[7] describes (under separate headings) these effects in the following words:—

Digitalis.	Suprarenal Extract.
"During the first stage there is marked slowing of the heart's beat, with large, full, hard pulse-waves and pronounced rise in the arterial pressure."	"When to an animal the full dose of suprarenal capsules is given there is developed a slow, full pulse, followed very shortly by a great rise of the blood-pressure."

Again, as previously stated in these columns, I have found that the pituitary body governs the secretory activity of the adrenals. This conclusion was not based merely on a few personal experiments, but upon data carefully recorded during the last half-century by physiologists of recognized technical competence. *Solid* links were thus forged for a chain of evidence, which additional facts found in literature since, or contributed to our knowledge at the present time, have only served to strengthen. The secretory nerves of the adrenals were conclusively shown to be present in the greater splanchnic by the experiments of Biedl, a fact since confirmed by Dreyer, and to belong to the sympathetic system by those of Leydig, Kölliker, Balfour, Inaba, Fusari, Dogiel, and others. The adrenal fibers were then traced by me up to the pituitary body, through analysis of the labors of Pavy, Cyon and Aladoff, François-Franck, and other investigators, though none of them had been made aware by their experiments that a nervous connection between the pituitary body and the adrenals existed.

If the marked increase of cardiac power and the rise of blood-pressure caused by digitalis is due, as I believe, to an increase of adrenal secretion in the venous blood of the heart, and therefore to functional hyperactivity of the adrenals, the *center* of the latter, the pituitary, must be the organ stimulated by the drug. In that case digitalis should produce effects corresponding to stimulation of the pituitary body: Cyon[8] found that stimulation of the exposed pituitary greatly increased the power of the cardiac contractions and caused a marked rise of blood-pressure. Masay[9] repeated and confirmed these results. Comparison of two of his experiments with two by Arnold and H. C. Wood, Jr.,[10] in which the influence of digitalin on the blood-pressure was recorded, will serve to indicate the correspondence between the effects of the drug and those of faradic excitation of the pituitary:—

Digitalin. (*Arnold and H. C. Wood, Jr.*)	Pressure.
Dog: 9.5 kilograms.	
Prior to injection	80 mm. Hg.
1 hour 10 min. after 0.02 gm.	104 " "
30 min. after injec. of 0.04 gm.	122 " "
After divison of both vagi:—	
Dog: 8 kilograms.	
Prior to injection	167 " "
50 minutes after 0.04 gm.	200 " "
1 hour 40 minutes after	140 " "
4 hours 20 minutes after	240 " "

Pituitary, Excitation of. (*Masay.*)	Pressure.
Dog: 2.6 kilograms.	
Prior to excitation	81 mm. Hg.
First excitation	144 " "
Second excitation	200 " "
After division of both vagi:—	
Dog: 5 kilograms.	
Prior to excitation	162 " "
First excitation	280 " "
After 15 seconds	270 " "
Second excitation	252 " "

The action of digitalis is not as marked as is direct excitation of the pituitary body, but the parallelism, as may be seen, obtains nevertheless. Masay's animals having received morphine and curare injections, those compared in the above tables were selected according to their initial blood-pressure, thus annulling this source of error. Striking in this connection is the observation by Masay that, after stimulation of the pituitary body had ceased, the *power* of the heart "increased very greatly and became greater than normal." We thus have a marked rise of blood-pressure followed by an increase of cardiac power—precisely the physiological characteristics, not only of suprarenal extract, but also of blood taken from the suprarenal veins, and of digitalis.

A crucial test of the whole question is available. If digitalis acted directly on the heart, brought there by the blood, this action would be independent of the central nervous system. Conversely, if digitalis produces its effect by stimulating the pituitary body and through it the adrenals, division of the nerve path between the former and the latter should annul or prevent the action of digitalis. Recently[11] I traced the *secretory* nerve between these organs, from the pituitary, through the central gray matter at the base of the brain, the tegmentum, the bulb, and down the spinal cord to the second and third thoracic ganglia, and thence by way of the sympathetic chain to the greater splanchnic. Division of the cord, therefore, anywhere above the third thoracic should arrest the effects of digitalis. Traube over thirty years ago (1871) showed that transsection of the spinal cord high up annulled the blood-pressure-raising power of this drug, while both Bezold and Boehm[12] observed a very marked fall of the blood-pressure immediately after dividing the spinal cord of an animal under the influence of digitalis.

In the light of all these facts, therefore, it seems evident that *digitalis increases the contractile energy of the heart and raises the general blood-pressure, not owing to a direct action upon the heart-muscle, but because it augments indirectly the functional activity of the adrenals, and thus raises the proportion of adrenal secretion supplied to the heart.*

This represents the main beneficial attribute of digitalis. As emphasized elsewhere, however, the secretion of the adrenals not only enhances the power of the heart, but after traversing this organ with the venous blood, it accompanies the latter to the lungs and, by absorbing therein oxygen from the air, becomes converted into a substance which Schmiedeberg, Salkowski, Jaquet, and other physiological chemists found in the blood and which, though unaware of its source, they characterized as an "oxidizing ferment." This substance, which I have termed "adrenoxin" owing to its composition, is a constituent of the blood-plasma and of the red corpuscles, and supplies all the organs of the body with their oxygen. Digitalis, therefore, by increasing the secretory activity of the adrenals, correspondingly augments the quantity of adrenoxin in the blood and the functional activity of all organs. In doing this it enhances their *nutrition,* including that of the heart-muscle.

Still, it is important to bear in mind in this connection that we have in this feature of the action of the drug the source of its harmful effects. The vasomotor centers (including, we have seen, the pituitary body), being rendered hyperactive along with all other cellular elements, the *blood-pressure* is raised by the general *vasoconstriction* thus provoked. The caliber of the coronaries and of the cardiac arterioles is necessarily reduced along with that of all other arteries. When, therefore, the dose is excessive (though perhaps nontoxic), too frequently repeated, or administered during too prolonged a period, the blood-supply to the heart-walls is reduced, and the contractions, which before were powerful and slow, become weak and irregular, ending sometimes in cardiac syncope—all effects now ascribed to a so-called *"cumulative"* action. Bartholow long ago contended that digitalis was not cumulative in the sense usually given this term. Recently W. H. Porter,[13] after an exhaustive physiological study of this morbid effect of digitalis, concluded that it was the result of excessive contraction of the heart's arterioles and of the consequent arrest of nutrition of the myocardium. This gives the foregoing interpretation of the process the soundest possible foundation. In the light of my views, therefore, the *so-called "cumulative" action of digitalis is not due to accumulation of this drug in the organism, but to the excessive stimulation of the vasomotor centers to which its injudicious use gives rise by overexciting the functional activity of the adrenals. The excessive constriction of the cardiac arteries thus provoked becomes the source of the cardiac arrest.*

We thus have the two features of the action of digitalis of paramount interest to the general practitioner. They include one of the factors which constitute the specific action of this remedy; *i.e.,* its marked influence on the pituitary body. Other contributive factors to this specific action are purely of academic interest and will be submitted elsewhere. The clinical use of digitalis in the light of the foregoing interpretation of its physiological action will be considered in the next issue of this journal.

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AMPUTATIONS OF THE LOWER EXTREMITY.

Anterior and posterior or muscle flaps, when obtainable, are to be preferred to the circular cuff of skin. The fibula should be cut off at a higher level than the tibia in leg amputations, and care should be taken to bevel off bony prominences, such as the sharp anterior tibial edge. Suture of the periosteum and approximation of the muscles and fasciæ is desirable. Drainage of the stump is advised, unless the dead space is obliterated by means of buried sutures.

Partial amputations of the foot or amputations at the ankle-joint, except under unusual conditions, are not as satisfactory as those above the ankle-joint. Tibial stumps between six and eight inches in length are the most serviceable. Amputations through the knee-joint are inferior to those just above the condyles. The longer the thigh stump, the better, provided the condyles have been removed.

In general, in tibial amputations down to four inches and in thigh amputations down to five inches it is advisable to sacrifice bone in order to obtain good muscle flaps. F. T. Murphy (Boston Medical and Surgical Journal, July 14, 1904).

BLOOD, CHANGES IN, AT HIGH ALTITUDES.

An increase in the number of red blood-cells (hyperglobulia) has been observed as the result of residence at high altitudes. C. Foà (Arch. Ital. de Biologie, March 24, 1904) finds that this condition does not occur at the height of 1200 meters, but that at 1800 meters there is not only a rapid increase in the red blood-cells within a few days, but also an increase in hæmoglobin. At 3000 meters the hyperglobulia begins eight to nine hours after arrival or even sooner. It varies in degree with different individuals. Hæmoglobin increases *pari passu* with the red blood-cells. The hyperglobulia is merely peripheral, being absent in the blood of the larger arterial trunks. In experiments performed upon rabbits and guinea-pigs the author noticed that six hours after arrival at the altitude of 3000 meters and from one to

six days of residence at 4560 meters, the bone-marrow does not show, either by its color or by its microscopical appearance, any increased hæmatopoiesis. The latter, however, occurs from eight to twelve days after arrival at the higher altitude. In individuals, on the tenth day of residence at high altitude, there is a slight increase in red cells and hæmoglobin even in the large arterial trunks, which is the result of increased production of erythrocytes in the red bone-marrow. Thirty-six hours after a return to the sea-level, the peripheral hyperglobulia has disappeared. The climatological and therapeutic applications of these researches suggest themselves. (Medical News, July 23, 1904.)

BORAX AND BORIC ACID, EFFECT OF, ON HUMAN BODY.

The test of borax and boric acid, as made by various feedings and other experiments followed up by after-death examination, and these supplemented by the therapeutic use of borax and boric acid, give answer with the fullest certainty as to their effect in moderate amounts upon the animal body, and justify the following conclusions: Borax exerts no specific action upon the animal body. Any effect it exerts is because of and by virtue of its mild alkalinity. The sum total of its effects upon digestion is not harmful and it exerts no ill effects upon the ingredients of the blood. It does not act as an irritant to the tissues generally or locally, nor cause pathological congestions. By its use nutrition is not impaired and it does not increase proteid metabolism. It is not cumulative within the body.

Borax in moderate amount, 2 grammes or more daily, exerts no ill effects upon the adult body. In the proportion of 0.5 per cent. it preserves fresh, sweet meat from putrefaction for long periods of time extending into months; while smaller quantities, even to 0.1 per cent. or less, have been shown in practical use to preserve for periods of less duration. Putrefaction once begun is not arrested by it nor its further progress checked. It is not a deodorant, removing from or concealing in putrefying meat its offensive odor.

All this is true of boric acid, also, except that any effect it exerts is by virtue of its mild acidity. Boric acid may be taken in larger quantities than borax without harm. Borax and boric acid, like anything naturally good, may become harmful when taken in excess. C. F. Dight (Northwestern Lancet, July 1, 1904).

CARCINOMA CERVICIS UTERI AND THE BLADDER, RELATION BETWEEN, AND ITS SIGNIFICANCE IN THE MORE RADICAL OPERATIONS FOR THAT DISEASE.

The cervix rests against the bladder posterior to the trigonum, and under normal conditions the two organs are but loosely attached to each other, so that their separation is easily accomplished. The size of the vesical area varies in different cases, and also with the position of the uterus in the pelvis and degree of distension of the bladder.

The growth in its anterior extension soon reaches the bladder, as manifested by the vesico-vaginal fistulæ resulting from the necrosis of the growth which has involved the bladder and accidental openings made in the bladder in freeing that organ from the cervix during hysterectomy for carcinoma cervicis uteri.

Freeing the uterus, parametrium, and upper portion of the vagina from the bladder exposes a large area of the bladder wall, extending from above at the

utero-vesical peritoneal fold to a point below, which varies with the amount of the vagina removed, but usually exposing a portion of or the entire trigonum. This area laterally extends beyond the entrance of the ureters into the bladder, if the ureters are resected or dissected free. There is no advantage to be gained in the removal of a long portion of the vagina unless it is involved by the growth, and the more vagina removed, the greater the injury to the bladder. On the other hand, the wide excision of the tissue surrounding the upper portion of the vagina is most important.

In freeing the bladder it is injured, the amount of injury varying with the difficulty experienced in freeing it, which in turn is dependent upon whether the bladder is adherent or not. The blood-supply of the bladder may be impaired by the ligation of large vessels from which vesical arteries may arise, and also in freeing this large bladder area all vessels going to this area are destroyed, and in addition vessels in the bladder wall may be injured. Nerves and ganglia are removed or destroyed in these operations, which may be important structures in maintaining the physiological activity of the bladder.

The function of the bladder is impaired by these injuries, as shown by the retention of urine or an inability to empty the bladder completely, which is apt to follow these operations. Injuries resulting from the operation, together with the impairment of function following them, lessens the resistance of the organ, so that it is usually unable to resist infectious organisms which may gain access to the bladder, and cystitis results. In addition to the avenues available for the entrance of organisms into the bladder a new one now presents itself, viz.: that is, the injured bladder wall. Cystitis occurred in 12 of 16 of these cases where the writer has followed the bladder conditions after operation, and in 2 of the 12 cases it resulted in renal infection and death. In 3 of the 4 cases in which cystitis apparently did not occur an accidental vesico-vaginal fistula was present, which apparently prevented a cystitis, for cultures taken in 2 of these cases showed colon bacilli in large numbers.

The best surgical treatment for infection in any part of the body is incision and free drainage, together with rest of the part diseased; and apparently this is what a vesico-vaginal fistula does for these cases.

It seems best that following these operations the bladder should be catheterized every three or four hours, followed by a bladder irrigation as a prophylactic means of preventing retention of urine and avoiding or lessening the severity of the cystitis, and should a severe cystitis develop as determined by cystoscopic examinations, a vesico-vaginal fistula should be made, which may be done without even a local anæsthetic, and if it does not close spontaneously it may also be closed without an anæsthetic.

The excision of portions of the bladder adherent to the growth improves the chances of a cure, and the presence of a vesico-vaginal fistula apparently lessens the chances of a postoperative cystitis and the danger of an ascending renal infection. J. A. Sampson (Johns Hopkins Hospital Bulletin, May, 1904).

CHOLELITHIASIS.

Cholelithiasis, like appendicitis, is a surgical disease, and, as in appendicitis, early and uncomplicated operations are devoid of risk. Patients whose gallstones are not readily set at rest by med-

ical and hygienic treatment should be sent to the surgeon before the outlying ducts are involved. In that stage, whether the surgeon elect to do cholecystectomy or cholecystostomy, the results will be extremely good, although in the light of present knowledge cholecystostomy should be the operation of choice. R. W. Westbrook (Brooklyn Medical Journal, July, 1904).

DAMIANA.

The writer studied this plant in lower California, its home. Damiana is a Mexican shrub, its habitat being on the peninsula of Lower California, inland from La Paz. It was introduced to American medicine under a misunderstanding of its nature. It is not a drug, but a general beverage. Its qualities reside in a fragrant leaf, yielding to hot water a pleasant, harmless, tealike beverage which, so far as history determines, has been consumed from all time by the Mexicans, and is still so employed by all classes, men, women, and children alike. It is a gentle stimulant or tonic, kindly in action, pleasant to the taste, and acceptable to the stomach. Its medicinal qualities are mainly restricted, in Mexico, to cases where a gentle stimulant may be effectual, as in suppressed menses, in which it is desirable to administer a hot drink in connection with a grateful aromatic that will not disturb the stomach. In other words, damiana is a homely, domestic remedy, innocent of the attributes under which, in American medicine, it has, for a quarter of a century, been forced to masquerade. Its American field is now restricted, but in its true position the use of damiana may be broadened. A freshly made tea of prime, recent damiana herb, when it can be procured, is perhaps the most desirable form of administration, or a concentrated cordial representative of the drug, of exceptional freshness and of prime quality, palatable as possible, made to carry the full qualities of damiana. John Uri Lloyd (Pharmaceutical Review, vol. xxii, page 126, 1904).

DECAPSULATION OF THE KIDNEYS, EXPERIMENTAL.

Following the decapsulation of kidneys in rabbits, in normal dogs, in dogs with induced nephritis, in dogs with infarcted kidneys, and in dogs with normal kidneys but with additional work thrown upon them, the writer found the following conditions:—

In all cases of two days and under and in controls the entire thickness of the capsule had been removed over two-thirds of the surface by the operation of decapsulation. There is a certain amount of intracapsular tension in undecapsulated kidneys, normal or with nephritis, as shown on removal of capsule. There is an immediate increase in size of decapsulated kidneys, persisting up to one month at least: afterward, a decrease to approximately normal size, complete at the end of six months. There is congestion, moderate in degree, most marked in the intertubular blood-vessels in the cortex, lasting from three to five days after the operation. No histological change in the renal epithelium follows the operation of decapsulation of kidneys.

A new capsule, very vascular at first, from two to four times the thickness of the old, is well marked at the end of eight days. At the end of six months it returns to approximately the normal thickness and vascularity. The new capsule arises chiefly from the connective tissue cells of the intertubular connective tissue, but in part from the retroperitoneal connective tissue which is present

in the new bed of the kidney. No new vessels are formed which anastomose with those of the kidney. The increase in size is due primarily to the increase in blood-supply, possibly resulting from the removal of the capsule. N. H. Gifford (Boston Medical and Surgical Journal, July 14, 1904).

DIPHTHERIA, THE PREVENTION OF.

When the transmissibility of diphtheria became known certain procedures naturally developed which were intended to hinder the spread of the disease. At first these methods consisted in a so-called disinfection of the rooms and articles regarded as infected and in a brief isolation of the sick. Later the increasing knowledge of the nature of diphtheria and of its manner of spreading have rendered the problems much more complex than apparent previously.

As regards disinfection, as ordinarily practiced, its rôle in the prevention of diphtheria must always be a limited one. Of course, rooms must be washed and aired, and clothes, utensils, and playthings subjected to disinfecting procedures; but even if we grant that hereby are destroyed certain evident sources of infection, it must be remembered that these are not the only sources that carry the infection broadcast.

In the prebacillary days, isolation of the patient was maintained until the membrane vanished. After the discovery of the diphtheria bacillus it soon was thought necessary that isolation must be continued until all virulent bacilli have disappeared from the throat and nose. This generally takes place in from two to six weeks after the disappearance of the membranes, but there are now numerous instances recorded in which bacilli have persisted for several months. It is therefore evident that effective isolation of diphtheria patients, especially in the country, cannot always be carried out. It has also been shown that in diphtheria convalescents bacteriological examinations of throats must be repeated many times with negative results before it can be declared that bacilli no longer are present, because bacilli may be absent, so far as our methods for revealing them are concerned, only to reappear in demonstrable numbers after a few days. How long a bacillus-carrying diphtheria convalescent continues infective will, of course, always remain a matter of uncertainty.

There forms about every diphtheria patient what may be termed an infected circle, composed especially of the brothers and sisters, the servants, schoolmates, and close associates in general, who may carry virulent bacilli in their throats and noses without themselves necessarily becoming ill. This condition has been designated as "latent diphtheria," "hygienic diphtheria," etc. In such persons may be abnormal states in the nasopharynx,—"sore throat,"—and to such have been applied the term "diphtheroid conditions." Numerous statistics are now at hand bearing on this phase of the question, and it may be said that the largest numbers of bacillus carriers develop or are found in conjunction with cases of diphtheria where the daily, personal relations are most intimate; that is, in the family (10 to 50 per cent.), in schools (up to 25 per cent.), and in hospitals, institutions, barracks (10 to 20 per cent.). Repeated observations show that when cases of diphtheria develop, for instance, in a school, a certain more or less varying percentage of the pupils will be found to have virulent bacilli in their throats, and of these pupils many may escape clinical diphtheria. While it is not possible to say dogmatic-

ally that all such bacillus carriers have received their bacilli from established cases of diphtheria, yet there can be no question but that a dissemination of bacilli, as a rule, takes place about foci of diphtheria, and it lies very near at hand to regard actual cases as the principal sources, especially of virulent diphtheria bacilli. To what extent the healthy bacillus carriers may infect others is also undecided, although the fact that the bacilli are virulent (for animals) may make these sources of danger under certain circumstances.

It has also been found that diphtheria bacilli are present in the throats of a small percentage—1 to 3 per cent., and even larger—of healthy persons in general, even when diphtheria is not present. In many of these cases, perhaps in most, the bacilli are not virulent, and the consensus of opinion seems to be that such cases play no rôle in the spread of the disease.

When it was discovered that healthy persons may harbor diphtheria bacilli in their throats and noses, the thought at once arose that such persons must be important, perchance the most important, factors in the spread of the disease. In some cities wholesale isolation of bacillus carriers was practiced; but this prophylactic measure does not seem destined to vigorous continuance, especially on account of the great practical difficulties of various nature connected with the isolation of well persons, as well as because of a reasonable doubt as to the actual danger of infection from such persons. There is a noticeable tendency among recent authoritative writers—Aaser, Gabrietschewsky—to minimize the dangers of transmission of diphtheria by healthy bacillus carriers; they point out that there is little empirical evidence in favor of such transmission. The harmlessness of healthy bacillus carriers who have not been in close relation with actual cases of diphtheria is generally acknowledged.

While isolation of the sick and disinfection are well-established prophylactic measures, whatever one may think of the wisdom of isolation of healthy bacillus carriers were it practicable, probably the most important measure at our disposal for the prevention of diphtheria is antidiphtheria serum. This was emphasized early by both Roux and Behring. The latter has long advocated serum as the only practical method of preventing diphtheria. Of late years the use of serum for this purpose has unquestionably increased rapidly, and numerous striking examples are now recorded of prompt jugulation of threatening epidemics in schools and hospitals, as well as other institutions, by the liberal use of serum. In general from 300 to 500 immunizing units are regarded as sufficient for this purpose. In case chance for infection should persist, this injection should be repeated in three to four weeks, because that is regarded as the average duration of the passive immunity established. It has been estimated that, used in this way, the serum will protect against diphtheria in from 97 to 100 per cent.

American boards of health have long been impressed with the value of immunizing injections in the prevention of diphtheria. In the circular to physicians recently issued by the department of health in New York City (Journal of the American Medical Association, May 7, page 1227, 1904) certain statistics are quoted from the records of the department which show that from January 1, 1895, to January 1, 1903, preventive injections were administered to more than 13,000 persons, of whom 3

per cent. contracted diphtheria of a mild type, although all had probably been exposed to infection because of the presence of the disease in other members of the family. Other statistics indicate that in persons similarly exposed, but not so treated, a many times larger percentage of cases of diphtheria develops with a rather severe death-rate.

In a school in Paris, diphtheria appeared from time to time between November 10th and December 5th, when the school was closed, and 164 pupils—more than 90 per cent. of the total number—were immunized. The school was opened again on December 8th, and no new cases appeared (Netter). In Norway, in which this phase of the diphtheria question has been studied very actively, the preventive use of serum is quite general, and numerous instances are cited of the prompt limitation of outbreaks in schools without interruption of the work. Aaser was able to prevent the development of new cases after the introduction of diphtheria into his scarlet fever and measles wards, and that without disinfection, merely by immunization. This is the more significant when the susceptibility of measles patients to diphtheria is recalled. Another striking example of the value of preventive serum injections is the following (Aaser): Of 101 well persons who were isolated because they had bacilli in their throats and received serum, not one developed diphtheria, while of 117 persons isolated for the same reason, in the same place, and about the same time, but none of whom received serum, 7 came down with diphtheria. Other examples of similar nature are recorded. It is evident that serum does what neither disinfection nor isolation can do—prevent disease in the already infected susceptible person, and by so doing it also prevents the establishment of a new focus for dissemination of infection. We hope that the preventive use of serum will be generally adopted by physicians throughout the country. It may be pointed out that this form of prevention of diphtheria is in its general features quite like the usual prophylaxis of small-pox—isolation of the sick and vaccination of the exposed. Editorial (Journal of the American Medical Association, July 23, 1904).

EYE, FOREIGN BODIES IN THE, AND THEIR REMOVAL WITH THE ELECTRO-MAGNET.

An eye in which a piece of iron or steel is buried invariably deteriorates, and ultimately becomes blind (siderosis bulbi) if the foreign body is not removed, unless it becomes completely encapsulated. In many cases this degeneration is preceded by the symptoms of hemeralopia.

If the foreign body is in the anterior segment of the eye, the Haab magnet is almost universally used, at least to get the particle into the anterior chamber. The injury in the great majority of cases, when it is in the anterior segment of the eye, is not attended with a prolapse of the iris, and the occurrence of this complication makes it probable that the foreign body has not penetrated the globe. This symptom, however, is not a reliable one in case the foreign body has made a large or irregular wound in the eye.

If the foreign body has penetrated into the vitreous, or posterior part of the globe, localization either with the siderоscope or *x*-ray had better precede any attempt to extract it, especially if the lens is still transparent. After the particle has been localized it can be removed by way of the anterior chamber with the Haab magnet, or by opening directly

into the sclera near where the particle has been located. As to which is the better method to be employed in this class of cases is still a matter of discussion among ophthalmologists.

If the symptom of pain cannot be elicited with the Haab magnet this is to be interpreted as evidence *(a)* that there that it is firmly encapsulated, *(c)* that it is enveloped, in recent cases, in a fibro-purulent exudation, or a blood-clot (Fehr's case), or (in less recent cases) that it is firmly encapsulated, *(c)* that it has passed entirely through the globe and is lodged partly or wholly in the orbital tissues (double perforation). W. B. Marple (Medical Record, June 25, 1904).

FATTY DEGENERATION.

This term should be limited to that condition in which an organ contains more fatty tissue than is normally present. This must be determined by chemical or microscopical methods. The latter, however, seems inadequate in most instances to afford any reliable quantitative estimate of the fat present in any given organ. Of the chemical methods, that which is based on the extraction by alcohol or chloroform seems most efficient. The author attempted to ascertain by experiments in animals which organs are the most liable to undergo a fatty degeneration. These were given phosphorus, phloridzin, chloroform, alcohol, and various other materials. The liver was apparently the most quickly affected. As regards the heart, chloroform and cantharides had no effect, alcohol and potassium bichromate caused an increase of about 2 per cent., phosphorus and phloridzin about 4 per cent., and extirpation of the pancreas was followed by an increase of 6 per cent. It seems, therefore, that there is no connection between the two in cases in which a patient dies from poisoning by chloroform and a fatty heart is found at autopsy. In the kidney a marked decrease in the amount of fat present is produced by cantharides and chloroform, very little change follows the administration of either phosphorus or potassium bichromate or extirpation of the pancreas, but a rather marked increase in the amount of fat is produced by alcohol. Muscular tissue, as a general thing, afforded the surprising picture of a diminution of the fatty elements rather than an increase. The author concludes from his observations that in those organs where fatty degeneration is present the fat arrives there by a process of migration. Rosenfeld (Berliner klinische Wochenschrift, June 9, 1904).

FRACTURE OF THE NECK OF THE FEMUR.

In both extracapsular and intracapsular fractures eversion and helplessness of the limb is the rule. The shortening may be very slight at first, so as to deceive the surgeon readily, a "bruise" being too commonly diagnosed. A careful sciagram should be taken of all injuries to the hip, as they are most difficult and obscure. Intracapsular fracture is more often overlooked than perhaps any injury. Shortening, with some lameness, is the ordinary result of fractures of the neck of the thigh bone, even with all care and the best treatment. A. Marmaduke Sheild (Clinical Journal, July 6, 1904).

FRACTURES OF THE PATELLA, PATHOLOGY AND TREATMENT OF SIMPLE.

Owing to the not infrequent uncontrollable rotation of the lower fragment, through an arc of 90 degrees on its horizontal axis, accurate apposition of the

fractured surfaces cannot always be secured, and under these circumstances the ultimate result of conservative treatment could scarcely prove satisfactory. Suitable apposition may also be prevented by the interposition of torn shreds of capsule, by extravasated blood-clot, and possibly also by the interposition of untorn periosteum, conditions which can be recognized and remedied only by exploration. Suture of the fragments permits of simultaneous suture of the torn capsule, a procedure of the greatest importance for restoration of joint security. The results of suture are almost invariably excellent, and the risk of operation is comparatively slight. In no way does the writer desire to belittle the risk of operation. On the contrary, the exercise of the most rigid aseptic precautions both in the preparations for and in the carrying out of the operation itself cannot be too greatly emphasized. Far better, in any instance, where, for any reason, the highest degree of surgical asepsis cannot be practiced, to advise some non-operative procedure than to subject the patient to the possibility of a septic arthritis, with all its dire consequences. Ellsworth Eliot, Jr. (Medical News, June 11, 1904).

GALL-STONES, TREATMENT OF.

The usual statement that 95 per cent. of gall-stones produce no symptoms is fallacious because it is drawn from autopsy and dissecting-room statistics. Recent researches point very strongly to the bacteriological origin of gall-stones. Bile is not bactericidal, for in the majority of cases of cholelithiasis micro-organisms of a more or less pathogenic nature are discovered. Under these circumstances, many more or less vague symptoms attributed to gastro-intestinal or general constitutional disturbances may arise from toxins elaborated around these foreign bodies in the gall-bladder.

All clinicians admit that there is a wide hiatus in the clinical symptoms between the early formation of gall-stones and the so-called classical attacks of biliary colic with jaundice. Abdominal surgeons should make a most careful record of all gastro-intestinal or hepatic symptoms and other vague epigastric pains and associate these with an examination of the gall-bladder, with a view to establishing a further link in the symptomatology of cholelithiasis. As cholelithotomy in a large series of cases has been attended with less than 2 per cent. mortality, the coincident removal of gall-stones with some other abdominal operation is not a hazardous undertaking. In the author's series of cases more than 50 per cent. have shown symptoms which could be unquestionably or with great assurance attributed to the presence of gall-stones. This coincident operation should be dictated by the most careful surgical judgment, for if the patient is in a critical condition from a prolonged operation, or the primary operation has been a septic one, this extra operation may be attended by serious results. J. G. Clark (American Medicine, July 9, 1904).

GASTRIC ULCER, TREATMENT OF.

The writer's conclusions from a study of gastric ulcer in one of its simpler forms are that the purely medical treatment of all forms of this disease should be persisted in until hæmatemesis occurs, which is in 50 per cent. of all cases, or until progressive disturbances of nutrition result in emaciation and exhaustion, when it becomes strictly operative. (Perforative cases are, of course, always operative.)

Upon the occurrence of hæmorrhage, at any stage of the case and in any degree, the proper treatment is surgical and delay is useless, if not dangerous, as it cannot be ascertained how serious the condition is. There may be a threatened perforation or erosion of the wall of a large arterial twig, etc. It is this same uncertainty that hangs about appendiceal and gall-bladder disease that makes it safest to operate early. And not alone for this reason, but because the patient wants rest from suffering, which in the event of such a complication only seems the more hopelessly remote. C. W. Strobell (International Journal of Surgery, July, 1904).

HÆMOPTYSIS, TREATMENT OF.

While the presence of blood in the sputum is often due to disease of the lungs, it is by no means always so, and the recognition of the source of the bleeding is naturally of pre-eminent importance, not alone on account of its prognostic significance, but also from its bearing on the treatment to be employed. Occasionally the blood comes from soft and spongy gums, resulting from various causes; at other times it is from the nares of the pharynx. Violent paroxysmal cough may cause laceration of tissue, with the escape of small amounts of blood. The sputum is mixed with blood; further, in cases of pneumonia and of hyperæmia of the lungs from any other cause, inflammatory or hypostatic, as well as in the presence of pulmonary infarction and of diseases of the blood itself.

Blood from the lungs will appear in generous amount when pulmonary vessels of considerable size are opened by rupture or destructive processes; for example, as a result of aneurism, syphilis, actinomycosis, parasitic diseases, bronchiectasis, gangrene, abscess, or tuberculosis.

Hæmoptysis due to pulmonary tuberculosis may occur early in the course of the disease, even before other suggestive symptoms have been noted. It is then probably a result of hyperæmia, the blood escaping from the vessels by diapedesis. The bleeding that occurs at a somewhat later period, when distinctive symptoms and physical signs are present, is probably due to ulceration of the bronchial mucous membrane. At a still later period, when excavation of the lung has taken place, the blood is derived from rupture of a pulmonary aneurism or erosion of the coats of an artery. Finally, hæmoptysis may occur at any stage of the disease in plethoric subjects.

In a brief communication dealing with this subject, Dr. J. Penn Milton (British Medical Journal, March 19, 1904), on the basis of personal experience at a well-known sanatorium, and from observations made elsewhere as well, ventures certain recommendations that are slightly at variance with current practice. When hæmoptysis occurs early, as a result of hyperæmia, he suggests carefully graduated, gentle exercise, such as slow walking, short of fatigue and dyspnœa, under shelter, unless fever be present or the hæmorrhage has been copious, or the patient be agitated. He believes that as a result of the exercise the blood-vessels, cutaneous and otherwise, in all parts of the body, but more especially in the limbs, become dilated, and thus a certain quantity of blood is withdrawn from the lungs. When the counterindicating conditions named are present, the patient should be put at rest in a sheltered situation out of doors, or in a bedroom, if necessary, and $\frac{1}{4}$ grain of morphine may be placed under

the tongue. Beyond a saline purge, hæmostatics are not necessary.

When the bleeding is due to tuberculous ulceration of the bronchial mucous membrane, the treatment should be directed to raising the lowered vitality and to improving the general nutrition. Exercise short of fatigue may be permitted or not, in accordance with the body temperature.

When hæmoptysis results from rupture of a pulmonary aneurism or erosion of the coats of an artery, the frequency of the heart-beat should be lessened, and the lungs be placed at rest, by seclusion and recumbency in bed, a hot-water bottle being applied to the feet. Morphine may be administered in doses of from $^1/_4$ to $^1/_3$ grain by the mouth or under the skin. The blood-pressure should be lowered by saline purgation. The diet should at first be light and unstimulating, consisting of raw egg, milk, raw beef sandwiches, etc. A full and nourishing diet should be gradually resumed as early as possible. If the bronchial tubes are obstructed by blood-clots, and cyanosis and dyspnœa are present, the morphine should be withheld and expulsion be permitted to occur. The patient must remain in bed until the sputum has been bloodless for a week.

The hæmoptysis occurring in plethoric subjects at any stage of the disease should be treated by lowering the blood-pressure by saline purgation, by a full amount of exercise—unless some counterindication be present—and by modification of the diet, which should include vegetables, especially green vegetables, and a minimum amount of meat, with abstinence from alcohol. The bleeding, when its occurrence can be anticipated, may be prevented by the administration of 30 grains of sodium salicylate in conjunction with an aperient.

It is appropriately pointed out that the treatment outlined is not to be pursued indiscriminately, but it must be applied intelligently in accordance with the conditions present in the individual case. Reference is made also to the fact that exposure to the wind may act as an exciting cause of hæmoptysis in tuberculous patients, who should therefore be protected from this hurtful influence. Editorial (Journal of the American Medical Association, July 2, 1904).

HÆMORRHOIDS, TREATMENT OF.

In the nonoperative treatment of hæmorrhoids, the writer uses the following treatment: Into the hæmorrhoid is injected from 5 to 10 drops of a solution consisting of 1 part of pure carbolic acid to 2 parts of glycerin and 2 parts of water. Two and sometimes three tumors are injected at a time, and the injection may be repeated after the lapse of one week. This is followed by gradual decrease in the size of the tumor; the prolapse disappears in a few weeks, and with it the bleeding, pain, and discomfort. The writer does not advocate this method in preference to the radical cure by operation, but resorts to it when patients refuse surgical treatment. It is important, in the first place, to determine whether the disease is primary or secondary to some affection of the pelvic organs. Operative treatment is not indicated in the first stage of hæmorrhoidal disease, but in the third stage no other treatment is indicated. The true value of the nonoperative treatment in the second stage of hæmorrhoidal disease frequently is under-estimated. H. A. Brav (Medical News, July 2, 1904).

HEART, NEW METHOD OF TESTING THE.

The author proposes a new method for determining the functionating power

of the heart, which is particularly of service when that organ is about to be subjected to the strain of a surgical operation. His procedure is based on observations made on animals that ligature of the large arteries results in an increased cardiac activity, which is characterized by higher blood-pressure, without any change in the pulse-rate. This condition does not disappear until the collateral circulation is fully established, and, as the resistance becomes lessened after several weeks, there is a return to normal conditions. As applied in practice, the patient is placed in a reclining position, and when thoroughly quiet the pulse-rate and blood-pressure are determined. Compression of both iliac or femoral arteries is then secured and kept up for from two to five minutes, and then the changes noted in blood-pressure and pulse-rate. In a normally acting heart the pressure causes a rise, in the column of mercury of the instrument, of from 5 to 15 millimeters, while the pulse-rate remains the same or is slightly diminished. In case of an hypertrophied heart, a rise of from 15 to 40 millimeters is noted, and the pulse remains the same or is increased. A slight insufficiency is accompanied by a pressure of 0, and a pulse-rate unchanged or increased. A marked insufficiency causes a minus pressure and an increase in the pulse-rate. The method has the advantage of being simple and easily applied, excitement being the only factor which might influence the result. This must be carefully guarded against. M. Katzenstein (Deutsche medicinische Wochenschrift, June 2, 1904).

HERNIA, REDUCIBLE, CURE OF, BY ALCOHOL INJECTIONS.

In No. 369 of the Sammlung klinischer Vorträge Dr. E. Steffen gives the results of the treatment by him, between 1886 and 1898, of 1182 cases of reducible hernia by Schwalbe's method of injecting alcohol into the tissues around the sac. Schwalbe's original procedure (as outlined by him in 1876 in the Deutsche medicinische Wochenschrift consisted in the injection into the tissues around the neck of the sac (not into the sac itself), of from 2 to 3 grammes of 20 to 70 per cent. alcohol, the underlying principle being that a connective tissue hyperplasia should follow such an irritation, especially as alcohol is believed to be prolific of just such hyperplasias, such scleroses, in the organs. The injections were made daily for from four to fourteen days, according to the sensitiveness of the patient and the degree of the subsequent reaction. With umbilical hernias, adhesive plaster strips were simultaneously used; with others, the truss. An intermission of a week or two following, after which the treatment is resumed. The result is a diffuse hardening around the neck of the sac, which shrinks and finally closes completely.

Since Schwalbe's original publication his method has been used by a number of physicians and surgeons. Thus, in 1891, Steffen himself published the results obtained in 293 cases, a cure being affected in 80 per cent. of the small and medium sized reducible hernias. The longest duration of treatment was four years, the shortest one year.

Steffen's modification of the Schwalbe treatment consists in the substitution for the alcohol of a mixture consisting of 100 grammes of 50 per cent. alcohol with 10 drops each of dilute phosphoric acid and formalin. In a case now and then, in which this mixture fails to bring about the necessary local reaction, he substitutes an injection of 1 or 2 grammes of extract of oak bark, which

always occasions a very strong reaction. Solutions of tannin are not to be substituted for the bark, as they are too apt to induce abscess and necrosis.

The present series of cases extends from December, 1886, to the spring of 1902. During this period Steffen has treated 1052 patients with 1372 hernias, but on account of various reasons (noncompletion of treatment for various causes, indifference, intercurrent diseases, etc.), only 901 patients and 1182 hernias are brought into the analysis. Of the hernias, the inguinal were 88.15 per cent.; crural, 7.02; umbilical, 3.90; and hernia of linea alba, 0.93. As regards outcome, the initial results were: cured, 75.3 per cent.; improved, 7.1; and not cured, 17.6. By "cured" is meant a case in which upon coughing and pressure, in both the sitting and recumbent postures, the earlier perceptible hernia is no longer visible or palpable; and, in the case of an inguinal hernia, in which the finger invaginated in the scrotal tissue cannot detect any impulse. As a result of treatment, the region of the injected area is harder than normal, and sometimes strandlike. The invaginated finger no longer enters an orifice, but abuts against a thick-walled cushion. In not a few cases, however, the finger still penetrates a very narrow canal, though the case must be regarded as cured. That a complete closure is not absolutely necessary to a cure results from the normal condition; and from the fact that there are many persons with wide hernial apertures or canals, in whom, nevertheless, no hernia protrudes, probably on account of a peritoneal adhesion at the inner ring.

Of the cures, 178 have persisted from 11 to 16 years; 305 between 6 and 10 years; and 221 from 1 to 5 years. In 77 cases the cure persisted till death or disappearance from under observation. Of the 17.6 per cent. improved, about one-half offered no evident cause for the failure, but in the other half Steffen believes the inefficacy of treatment to have been due to the existence of chronic bronchitis and emphysema (19 cases) cough of influenza (4), emaciation with flabby musculature (6), and obesity (5).

Of the cured, 111 (or 12.5 per cent.) relapsed, the causes of relapse being the same conditions, and indeed in just about the same proportions, as those which involved nonhealing. About one-third of the relapses represented no obvious cause. Relapsed cases can be treated again in the same way.

The author concludes that the treatment of reducible hernias by Schwalbe's method, as modified by himself, yields about 75 per cent. of initial cures, so that the patient can do all sorts of work without a truss, and upon examination no hernia can be proved to exist. The duration of the treatment is at least one year in the case of small and recent hernias. The larger the hernia—that is, the wider the orifice and the older the hernia—the longer the time necessary for a cure (two or three years or more). In most cases the patient can go about as usual, and the treatment is to be carried out with constantly lengthening intervals. Special precautions are not necessary. Very wide apertures demand at the beginning daily injections of small doses, with rest in bed. In general the method is applicable to all reducible hernias which can be retained by a truss. Hernias partially retainable can, as a rule, be improved, so that by aid of a truss the patient can carry on work again efficiently. The method is suitable for all ages. As it involves no narcosis and no long confinement, it is in many cases in the aged to be preferred to

the radical operation. A treatment cumulative and compressed into a short time is not to be recommended, as the initial acute inflammation induced must be transformed into a chronic stage, and for this a longer time is needed. A toxic subsidiary action (*e.g.*, urticaria) is rarely observed. With the proper care and reference to the anatomical conditions, unfortunate accidents are extremely rare. The procedure cannot, however, be said to be absolutely without danger. The mortality is about 0.04 per cent., as against 0.34 per cent. with operative treatment.

For initial results, the injection method evidently cannot compare with the radical operation, as the latter yield nearly 100 per cent. of initial successes. As regards relapses, however, while it is not yet possible to state accurately the results of the operative treatment, Steffen's own observations would lead him to think the number not greatly below the 12.5 per cent., which occurs with the injection treatment. Kocher, to be sure, had only 1.2 per cent. of relapses, but other operators have had as high as 10.8, 11.9, and 15 per cent.

The injection treatment will be properly characterized if we say that it is a perfectly practicable restoration procedure in the treatment of reducible hernias which is suitable for a great number of cases, and is welcomed by many patients.

And as the treatment is one within the reach of every physician, and does not demand the developed surgical technique, but can be easily carried out, it deserves far more consideration than it has heretofore received. The author does not, however, say that he prefers it to the radical operation, but remarks that there are many patients who will not submit to that procedure, and for them the injection treatment can be used with good success. Editorial (Medical Record, June 18, 1904).

ILLUMINATING GAS POISONING.

The author draws the following conclusions from a study of comatose cases of illuminating gas poisoning:—

Leucocytosis is both high and persistent, rising in many cases above 18,000, and in a few fatal cases as high as 50,000. A differential leucocyte count shows preponderance of the polymorphonuclear cells. A high degree of leucocytosis is a very unfavorable prognostic symptom.

Elevation of temperature is observed in nearly all cases. The fever is usually moderate and of very irregular type. In many cases a subnormal temperature precedes the elevation, and it is often observed also in convalescence. The pulse is disproportionately rapid, as compared with the temperature.

The nervous symptoms are both varied and inconstant. Convulsions occur in about 7 per cent. of all cases and muscular rigidity in a slightly larger proportion. The reflexes and pupil symptoms show great variability. The coma bears no definite relation to the intensity or duration of the fever. Coma lasting four or five days is not invariably fatal. In the series of ninety comatose cases only seventeen cases, or 18.8 per cent., were fatal.

The results of combined phlebotomy and saline infusion justify the prompt and thorough employment of these measures.

Pneumonia is an infrequent complication, and in a large percentage of fatal cases the cause of death may be referred to cerebral lesions, such as congestion of the meninges and brain substance, hæmorrhage of the cerebral capillaries, or

hæmorrhage into and softening of the internal capsule, lenticular nucleus, and adjacent structures. W. Gilman Thompson (Medical Record, July 9, 1904).

INFECTIVE DISEASE, CHANGES IN THE INTERCOSTAL MUSCLES AND DIAPHRAGM IN.

The writer has studied the intercostal muscles in 7 cases; 2 of these were croupous pneumonias with plastic pleurisies, the pneumococcus being isolated from the lung and pleural effusion; 2 were tuberculous lesions of the pleura, and 2 others were cases of acute pneumococcic pleurisies. The muscle-fibers showed marked granular change, lack of tingibility or stain reaction; later granular acidophilic deposit around the muscles and interfascicular connective tissue. In the third stage there is a leucocytic infiltration of the muscle similar to that shown by Rohrer. Some fibers appear almost necrosed beside the healthy ones, closely resembling myocardial degenerations of various infectious diseases. There is no difficulty in the identification of organisms that may reasonably be considered pneumococcic. The fourth stage is studied with difficulty unless the patient dies. Small necrotic areas infiltrated by polymorphonuclear leucocytes are really microscopical abscesses. The writer thinks the tendency would eventually be to a certain degree of muscular sclerosis or a subacute or chronic sclerous myositis. The influence of the changes on the thoracic wall are obvious, and a change of respiration must be evident. Such structural alterations in the intercostal muscles possibly clear up the observation that intercostal rheumatism, intercostal neuralgia, etc., are complicating or associated phenomena of pneumonia and pleurisy. W. M. L. Coplin (American Journal of the Medical Sciences, May, 1904).

LEUCOCYTE COUNT, DIFFERENTIAL, AS AN AID TO THE DIAGNOSIS OF FEVERS.

It is not so much the absolute increased percentage of large lymphocytes which is diagnostic of malarial infection as the relative increase over the small lymphocytes. In cases of malarial infection without much fever and without quinine history, the polynuclears are markedly diminished and the large lymphocytes very much increased in proportion. In the absence of an adenopathy, possibly also of influenza and measles, the above finding is positive evidence of present or very recent malarial infection. During the rise of a malarial fever, or as a result of quinine therapy, the polynuclear leucocytes may reach 80 per cent., but in that event the large lymphocytes exceed in number the small ones. In malarial hæmoglobinuria any of the various blood-findings characteristic of malarial fever may be present in any stage, and there is no evidence now at hand to explain this. Malarial and typhoid fevers can be more positively differentiated from fevers of sepsis, pneumonia, rheumatism, malignant tumors, etc., by the differential leucocyte count than by the hæmocytometer, and it can be done on dried films, away from the bedside. Malarial infection makes a strong impress upon the leucocyte relation, no matter what other disease it is associated with. It is not safe to rule out typhoid fever when the malarial variation is found, but, as it calls for antimalarial medication, the therapeutic test may decide before a Widal would appear. In a gradually developing fever, the absence of marked increase

in large lymphocytes or polynuclears during the first week justifies a preliminary diagnosis of typhoid fever. William Krauss (Transactions of the American Medical Association, Medical Record, June 25, 1904).

LITHOTOMY VERSUS LITHOLAPAXY.

Litholapaxy is certainly the operation of election in all simple cases of stone in the urinary bladder. When the stone is too hard or too large to be crushed through the urethra or removed by the lateral method without injury, the suprapubic method should be adopted or, perhaps better, perineal lithotrity. When the stone is encysted or associated with a tumor of the bladder or prostate, the suprapubic route should be chosen and both removed at the same time. Where there is a tight, deep urethral stricture, especially when fistulæ exist, requiring a long operation to overcome, the suprapubic or median perineal operation should be selected.

In ankylosis of one or both hip joints, which interferes with the use of urethral instruments, and excludes all perineal operations, suprapubic lithotomy should be done. In the presence of foreign bodies in the bladder, which may form the nucleus of a calculus and resist the lithotrite, one of the perineal methods should be performed.

Although litholapaxy applied to children is very successful in the hands of experts, for the present lateral lithotomy is the safer operation for the general surgeon.

Litholapaxy should be carried out, whenever possible, when senile degenerations exist, or when there are morbid changes in the genito-urinary apparatus, and the necessary treatment afforded to the complication, either before or after litholapaxy. C. B. Shuttleworth (Canadian Practitioner and Review, July, 1904).

MASSAGE OF THE HEART.

D'Halluin (Presse Médicale, vol. i, No. 44, 1904) reviews the history of the attempts to revive the arrested heart by massage, and relates personal experiments in this line, both with massage alone and with intravenous injection of adrenalin or intra-arterial injection of Locke's artificial serum. He was able to resuscitate with the adrenalin a dog that had been asphyxiated for thirteen minutes, but the amount injected—$^1/_{10}$ milligramme per kilogram—was probably too large, as the animal died two hours later. Intra-arterial injections cause such distension of the right heart that it interferes with resumption of the heart's pulsation. This suggests the possibility that the heart might be catheterized by way of the jugular, and the oxygenated venous blood reinjected into an artery. This would realize a kind of auto-infusion. In experimental research, massage of the heart has established its efficacy, but the results on man have been practically *nil*, with the exception of Haag's and Starling's experiences. The principal cause of the failure seems to be the production of a fibrillary trembling under the influence of the massage. Perhaps this may be obviated by Batelli's technique, introducing one electrode into the rectum, with the other, consisting of two small discs, applied over each ventricle. Artificial respiration is started and the heart is massaged at the same time. As the oxygenated blood enters the coronaries the fibrillary tremor is observed, but it can be arrested by turning on the current (240 volts) for a second or two. It can also be arrested by an intravenous injection into the jug-

ular of 1 gramme of potassium chlorate. By combining the massage with artificial respiration, the myocardium is relieved of its intoxication, and rhythmical pulsation recommences after an interval of from ten to forty-five minutes, and sometimes longer. The massage of the heart induces an actual circulation, as it reanimates and maintains the bulbar activity. But the blood must still be fluid and the nerve-centers relatively intact for it to be effectual. It should always be combined with artificial respiration. (Journal of the American Medical Association, July 9, 1904.)

MEASLES AND SCARLET FEVER, TEMPERATURE CURVE OF.

Clinical observation of measles and scarlet fever in hospital and private practice had led the author to the conclusion that the temperature curve in these two acute infectious diseases is as characteristic and distinctive for each of them as are the respective curves of typhoid, typhus, and small-pox. In measles the temperature rises in steps, irregularly, to about the sixth day, then falls by crisis on the seventh or eighth day. In scarlet fever the rise to the maximum temperature occurs on the first day. The temperature stays at the maximum until about the sixth day, when it falls by lysis, reaching normal between the tenth and thirteenth days. H. W. Berg (Medical Record, July 2, 1904).

MORPHINE HABIT, TREATMENT OF, BY HYOSCINE.

The writer uses the hydrobromate of hyoscine hypodermically in doses of from $^1/_{200}$ to $^1/_{50}$ grain in the treatment of the morphine habit. The dose should be very small to begin with, $^1/_{200}$ grain, and increased gradually to $^1/_{100}$ grain. As morphine and strychnine are antidotes for hyoscine, no fear need be felt of producing disastrous effects. The writer has never seen any bad after-effects from its use. The plan of treatment is as follows: The patient is kept under observation for a few days, and the amount of morphine and cocaine reduced to what will keep him comfortable, although this is not necessary. The night before beginning the use of hyoscine, 6 to 8 grains of calomel, in combination with some vegetable cathartic, are given, and this is followed by a saline the next morning. The usual morning dose is given, but when the patient calls for morphine in the afternoon hyoscine is substituted, and from this time for thirty-six to forty hours the patient is kept under the influence of the drug, $^1/_{200}$ to $^1/_{100}$ grain being given every two or three hours, according to the condition of the patient, but never enough to stupefy him completely. The patient should be kept in bed and supplied with a day and a night nurse, so as to keep him under constant surveillance. If the pulse becomes weak or irregular, strychnine may be given, and, if necessary, a little morphine or codeine is added. If there is need for an hypnotic, the writer gives trional or chloral hydrate, with bromide of soda. Large doses of the latter, given for a few days preceding the treatment, will allay nervousness. The after-treatment is the same as in other methods—tonics, nourishing diet, and rest. J. M. Buchanan (American Journal of Insanity, April, 1904).

MUSCULAR ACTIVITY, INFLUENCE OF, UPON DISTRIBUTION OF BLOOD.

Carlo (Gazzetta degli Ospedali e delle Cliniche, April 10, 1904) counted the number of red cells and white cells and measured the circumference of the limbs before and after muscular exercise (bi-

cycle riding, etc.). His object was to determine the influence of muscular activity upon the distribution of the blood at the periphery of the body. He found that the circumference of the arm and of the calf was increased by muscular exercise, and that the number of red and white cells was increased at the periphery of the body. He concludes from this that during muscular exertion a great amount of blood is distributed to the periphery, and that, the longer and more intense the exercise, the greater the circumference of the limbs, and the greater the number of blood-cells. There is probably during exercise a constriction of the vessels of the internal organs and a dilatation of the vessels and skin through a vasomotor influence. The number of white cells present after exercise is increased, not only absolutely, but in proportion to the red cells. This is explained by the fact that during muscular exertion there is an increase in the pressure and velocity of the lymph current. (New York Medical Journal and Philadelphia Medical Journal, July 23, 1904.)

NASAL DYSMENORRHŒA.

The writer believes that the so-called Fliess treatment for the relief of menstrual pain is not founded on pathology *per se*, but is purely psychical. Many cases of dysmenorrhœa are based on general hysteria, and often a cure of the latter will also cure the former. At the same time, any interferences may relieve hysterical pain, and such relief may last for varying periods of time. The author has treated quite a number of cases according to the Fliess method, but without permanent success. According to the advocates of this method, these unsuccessful cases would be classed as not being of nasal origin, the claim usually put forth when cocainization of the nares fails to relieve menstrual pain. In all of the writer's cases cocainization gave the patient more or less relief for the time being, but, when subjected to a general treatment for hysteria, the relief was permanent. In two cases in which nasal cocainization furnished prompt temporary relief, the author succeeded at the next two periods in completely subduing the beginning pains by the internal administration of antipyrin. The writer believes that the right to proclaim nasal dysmenorrhœa as a clinical entity is not established. The influence of cocaine on dysmenorrhœa can be explained by the general intoxication of the system with this alkaloid. Every patient suffering from menstrual pains should be examined as to general hysteria. The administration of cocaine, especially in nervous patients, is not to be recommended on account of the deletery influence of this drug on the nervous system and the danger of habituation. In the absence of anatomical abnormalities and of hysteria massage should be given, or the patient should be advised to ride a bicycle. G. Kolischer (American Journal of Obstetrics, June, 1904).

OTITIS MEDIA, ACUTE.

The writers point out the danger of improper treatment, leading to mastoiditis, purulent sinuses, caries, destruction of the tympanum and ossicles, etc., and the benign course of the disease under proper care. Otitis media is usually rhinogenous. Drainage is the keynote of treatment. There are always mastoiditis, rhinitis, pharyngitis, and a general physical lowering, all of which conditions demand attention. If perforation of the membrane is spontaneous and sufficient, proper dressing is all that is required;

if not sufficient, the perforation should be enlarged. In mild cases, perforation is not necessary, and warm, aseptic applications externally, with application to the inside of the ear of a warm solution of carbolic acid and glycerin, will suffice. Deafness, great pain, and high fever demand paracentesis, which should be performed after careful sterilization, first, with carbolic acid and glycerin and, later, with sublimate solution. Local anæsthesia should always be tried, a piece of cotton, saturated with equal parts of carbolic acid crystals, menthol, and cocaine hydrochloride, being laid gently on the membrane. In children and nervous subjects general anæsthesia will be necessary. Drainage may be carried out by means of a strip of sterile cotton. Subsequently dressing should be done daily by the surgeon himself, who must examine the conditions present with great care. Usually paracentesis is followed by immediate relief; if not, the mastoid operation is to be preferred to its repetition. Adenoid vegetations must be removed, enlarged tonsils excised, and any catarrhal condition treated. The general health must be improved. Otitis media occurring either in infants or the aged demands particular attention and is liable to be overlooked. When the mastoid operation is indicated, as the authors point out, no surgeon has ever blamed himself for operating too soon or too extensively. Lermoyez, Lubet-Barbon, and Moure (Presse Médicale, May 4, 1904).

OXYGEN, THE NEED OF, IN THE ACTIVITY OF FERMENTS.

Sakharoff (Roussky Vratch, April 24, 1904) contends that oxygen is necessary in the activity of hydrolytic ferments, and that oxidation is intimately connected with hydrolysis, and is even the cause of the latter. The following experiment is described in proof: Into each of two test tubes, holding about 30 cubic centimeters each, are placed 15 cubic centimeters of a freshly prepared diluted starch paste. The contents of the first test tubes are boiled for two or three minutes, and, upon removing it from the flame, the starch solution is covered by an inch and a half of boiled oil. After cooling the mixture to room temperature, a small amount of diastase solution deprived of oxygen is allowed to mix with the starch, after having been passed through the oil by means of a fine pipette. The same amount of the same ferment is poured into the other test tube containing starch solution at room temperature. If the two test tubes are heated at 50° C., it will be noted that in the test tube which is not protected by oil, the starch begins to become transparent, while in that protected with oil it remains opaque. On examination, the first tube will be found to contain sugar, while in the second sugar is absent. In order to deprive the solution of diastase of oxygen, the author adds to it a small amount of soda and of pyrogallol, and allows this mixture to stand under a layer of sterilized oil for several days. No air should be allowed to enter the solution of starch, and therefore the pipette must be drawn out to a point as fine as that of a hypodermic needle. (New York Medical Journal and Philadelphia Medical Journal, July 9, 1904.)

PANCREATIC DISEASE.

Pancreatic hæmorrhage may be due to various causes, such as an accident, a hæmorrhagic diathesis, arteriosclerosis, cholelithiasis, or intestinal contents injected through the common duct into the pancreatic duct. The writer knows of

no case where this condition has been successfully operated on.

Acute pancreatitis, hæmorrhagic or otherwise, is difficult to recognize prior to laparotomy, chiefly because there is not sufficient time for a proper consideration of the circumstances of the case. In hospitals, where all the appliances are at hand to facilitate diagnoses, there is less difficulty. Mild cases may get well without a surgical operation; how frequently is not yet known. The mortality of this form is large—80 per cent., according to Mikulicz (Medical Record, February 20, 1904), and his percentage is probably low. An operation in the stage of collapse is hardly justifiable. If the attack is due to gall-stones, extraction and drainage is likely to give relief.

In chronic pancreatitis from various causes the mortality may be as low as 4 per cent. (Mayo Robson). According to the combined figures of Koerte and Takasu, the mortality in operations for pancreatic cysts has been 9 per cent. Enucleation is only advisable when the cyst is pedunculated.

Judging by personal experience, which fortunately for the prognosis are exceptional, the outlook in any event is unfavorable. In the writer's 13 cases, 6 were carcinomatous, and several due to secondary infection, in which there was absolutely no hope. In two the implication of the pancreas was coincident with cirrhosis of the liver, and in one with cirrhosis and peritonitis, while the case of hæmorrhage and the case of cholelithiasis were the only ones in which a surgical operation could have afforded permanent relief.

As in cholelithiasis, expectant and palliative treatment will in mild cases of the acute form be likely to show favorable results. In addition, the use of pancreatin offers promise. In a case alluded to by Dr. Manges (Medical Record, February 20, 1904), where the patient was growing rapidly weak from a pancreatic fistula and loss in pancreatic juice, a pancreatic extract induced a rapid recovery. The writer has had a somewhat similar experience in a patient with chronic glycosuria, with bronze discoloration, painful induration over the region of the pancreas, emaciation, and progressive feebleness; pancreatin was used in $^3/_4$-grain doses, from three to four times a day, the patient being temporarily restored to health with the disappearance of his glycosuria. T. E. Satterthwaite (The Post-graduate, July, 1904).

PEROXIDE OF ZINC IN SURGERY.

Peroxide of hydrogen is not durable, and after the oxygen has been liberated nothing remains but water, and water is destructive to the cells. Peroxide of zinc combines all the advantages of peroxide of hydrogen with none of its drawbacks. It has the same properties as zinc oxide, but with an additional molecule of oxygen, which it yields readily, especially in contact with the tissues. The author has applied it to recent and old wounds, burns and torpid lesions. Gauze medicated with it aids in healing, at the same time suppressing odor, as he found in ten cases in which it was used as a dressing after colpotomy. It has always been found an energetic antiseptic, neither irritating nor toxic, keeping well and easily sterilized. Chaput (Presse Médicale, vol. i, No. 38, 1904).

PROSTATE, SURGERY OF THE.

Prostatic enlargement is not a senile condition, in the strict sense of the term, its causes prevailing at a period of life much earlier than the development of

the symptoms. Infection and chronic congestion are important etiological factors, occurring at a relatively early period. Prostatic surgery will never be developed to a plane even approaching perfection until the profession at large understands the necessity of a careful supervision of the genito-urinary apparatus in the male, permitting of early discovery of prostatic obstruction. Operations upon the prostate prior to the development of septic complications in the bladder and kidneys, and prior to pressure changes in the latter organ, are not necessarily formidable.

The indication for operation is the existence of a prostatic tumor, this being qualified only by delay in the discovery of the condition and the supervention of serious complications. Under the latter circumstances palliation may be required. Palliation by the catheter or by vasectomy is only to be considered in cases in which, for one reason or another, a radical operation is absolutely contra-indicated. Catheter life should never be begun save with the understanding that the expectancy of life is relatively short, probably on the average not more than five years. Cases in which prolonged and comfortable catheter life has been shown to be practicable are to be accepted as merely exceptions to the rule as to the diminished longevity of the catheter victim.

No operation can be used in all cases as a matter of routine. Perineal prostatectomy, skillfully performed, is the operation of election. The statistics of operations upon the prostate up to the present time are not of great value, because of the wide variation in the skill of operators and the age and condition of patients. As cases are nowadays brought to the surgeon for operation, a greater or less percentage of fatalities, accidents, and unsatisfactory results must be expected. No method of operation has yet succeeded in revolutionizing the old man's pathology. Ideal conditions for the radical surgery of the prostate will not prevail until the average age of patients submitted to prostatectomy is many years below that of the patients upon whom operation is at present done. The age of the patient is, however, not so important as the length of time since the beginning of catheter life or of serious symptoms. The old man 70 years of age, who has had his first attack of retention within a few weeks or even a few months, is a much more favorable subject for operation, other things being equal, than a man some years younger who has had many attacks of retention and a more or less prolonged catheter life. G. F. Lydston (Medical Age, June 25, 1904).

PSORIASIS, TREATMENT OF.

The writer emphasizes the great therapeutic value of his combination of green soap and chrysarobin for the treatment of psoriasis. The salve should be rubbed into the patch with a paint brush morning and evening, for from four to six days. The fifth and sixth days the patch should be laved with warm water and vaselin thoroughly rubbed in, once to three times a day. This should be repeated for from one to three days, and then the salve recommenced, going over the same eight-day course from one to three times. The author's formula is 10 parts salicylic acid, 20 parts each of chrysarobin and oleum rusci, and 25 parts each of green soap and vaselin. The salve thus made combines keratolytic, reducing, peeling, and specific antipsoriasis remedies. Dreuw (Münchener medicinische Wochenschrift, vol. li, No. 20, 1904).

RADIUM AND ITS THERAPEUTIC POSSIBILITIES.

Radium produces effects upon the tissues closely analogous to, if not identical with, those produced by x-rays. The indications, accordingly, for its therapeutic uses are along the same lines as those for x-rays, viz.: in certain inflammatory diseases of the skin, like eczema, psoriasis, lupus erythematosus, and lichen planus; in certain bacterial diseases of the skin, like acne, sycosis, lupus vulgaris, and blastomycosis; in certain diseases where destruction of tissues of low resistance is desired, as in lupus vulgaris, carcinoma, and sarcoma.

These are exactly the indications for the therapeutic use of x-rays, and future experience alone can determine which of the two agents will prove of the greater practical value in meeting these indications. In some respects the writer believes radium will prove superior; in the far greater number x-rays will have the larger field of usefulness. In the treatment of lupus and cutaneous carcinoma there is sufficient experience to give a fairly accurate technique in the use of radium. For its use in affections other than those which are sharply circumscribed to small areas the technique has not yet been developed.

It is probable that Becquerel rays will be efficient only to a very limited depth. This conclusion is based, first, on the fact that the greatest effect on the tissues is produced by the x-rays, which have a relatively slight penetration, and, second, on the studies made by Halkin on the effect of radium on tissues. On account of lack of depth of effect it is not likely that radium will be as effective as x-rays against lesions of more than half an inch in thickness or subcutaneous in situation. Becquerel rays have theoretical advantages over x-rays in the accuracy of dosage which will be possible after experience has been obtained in their use. They also have advantage in their ease of application at inaccessible points. They have a disadvantage in the relatively small quantity of energy available, and in the limitation accordingly of any single efficient exposure to a very small area.

It is highly improbable that the use of radium is going to be of epoch-making importance in therapeutics. It supplements and it may add materially to the methods now at command for using actinic radiant energy in therapeutics. If it becomes less expensive and obtainable in relatively larger quantities, it may supplant to a limited extent the use of x-rays and ultraviolet light, although it is not probable. At the present time it is not an entire substitute for either of them, and is to a very great degree less efficient than x-rays in its general therapeutic usefulness. W. A. Pusey (Journal of the American Medical Association, July 16, 1904).

RECTUM, POLYADENOIDS OF THE.

Adenoids are found in the young as well as the old, but when found in advanced life they may assume characteristics of epithelioma, and then extirpation should be resorted to. Very little reliance can be placed in the pathologist's report, for, although the tumors may be benign in their incipiency or at the time of the initial operation, malignancy may develop shortly afterward.

The treatment is, as a rule, eminently satisfactory in its results. The usual slender pedicle attachment of the tumor invites removal, and its benign character justifies the accomplishment of this operation by the simplest measures. G. B. Evans (Cincinnati Lancet-Clinic, July 16, 1904).

RENAL TUBERCULOSIS.

There is no royal road to the certain diagnosis of the nature or pathology of renal enlargements. It is impossible to differentiate with absolute certainty a simple renal hypertrophy from a tumor, especially when, as it occasionally happens, the hypertrophy is more or less asymmetrical, or when a neoplasm differs but little in shape or density from the kidney which it has invaded. But when the problem of deciding as to the nature or pathology of a renal growth presents itself, the difficulty is very much increased, and, in fact, the question is one which it is impossible to answer, except by negatives, prior to an operation. But it is a matter for congratulation that the time has come when renal tumors are no longer mistaken for ovarian tumors, as was formerly so often the case.

It seems to be a comparatively rare thing to discover tubercle bacilli in the urine. Several new methods, or rather improvements in technique, have been proposed recently, but the author has not yet been able to give them satisfactory trials. One difficulty was that of being able to discriminate with absolute certainty between smegma bacilli and tubercle bacilli, but thorough alcoholic decoloration of a carbol-fuchsin stains, after previous decoloration with nitric acid, seemed to solve that difficulty. Of course, the trained bacteriologist, working in a hospital laboratory, would have no difficulty, but the confusing resemblance between tubercle and smegma bacilli might lead a comparatively inexperienced practitioner far astray in his diagnosis. J. Bergen Ogden, in his "Clinical Examination of the Urine," gives very clear and concise directions for the examination of urine for tubercle bacilli, the gist of which is that the suspected pus should be twice washed in distilled water, then stained in the usual manner with carbol-fuchsin, then decolored with nitric acid, and afterward decolored for at least ten minutes with 70 per cent. alcohol. The specimen is now ready for staining with methylene blue and mounting for examination. Improved methods will without any doubt enable the detection, with certainty and facility, of tubercle bacilli in the urine, but up to this time it must be said that their detection in urinary deposits is uncertain and unreliable as a means of positive diagnosis.

Primary tuberculosis of the kidney, while not common, is not so rare that it can be left out of calculation in any case of renal tumor. The fact that tuberculous disease has not appeared in any other part of the body is of little account as an argument against the possibility of tuberculosis of the kidney, in spite of the common belief to the contrary. It must be remembered, also, that other deposits of tubercle, too small or too obscure for detection, may be present, so that it is hardly safe to assume that any case of renal tuberculosis is positively primary, without the most searching examination of all accessible portions of the body. Furthermore, this rule holds good in the case of children, as well as adults; hence no case can be considered exempt therefrom.

The great majority of kidney operations must be regarded as exploratory and diagnostic. No operator, however experienced, can be sure what he is going to find when he exposes a diseased kidney. Those who have had the greatest experience in renal surgery can look back upon their surprises and disappointments, as evidenced by cases in which the exposed kidney told a very different story from what the pre-operative diagnosis indicated. Of course, this is not peculiar

to renal operations; but of late the idea has arisen that, owing to improved means of diagnosis, a marked degree of certainty has been reached with respect to the diagnosis of surgical diseases of the kidney. But in spite of all refined methods, backed up with the highest degree of skill and the largest experience, the diagnosis of surgical lesions of the kidney, and especially renal neoplasms, is still to no small extent a matter of conjecture. I. N. Danforth (American Medicine, July 9, 1904).

ROENTGEN RAYS, ACTION OF, ON INTERNAL ORGANS.

If animals are exposed to the action of the x-rays, peculiar changes are found in the spleen. The pigment is excessively increased here, the follicles gradually disappear, and the cellular elements of the splenic pulp undergo extensive rarefaction. The earliest of these changes, according to H. Heineke (Münchener medicinische Wochenschrift, May 3, 1904) is the disappearance of the follicles; it can already be noticed several hours after exposure and ceases in twenty-four hours with small animals such as mice and rats. The nuclei of the lymphocytes in the follicles break up into fragments and are gradually removed by phagocytes. The same phenomenon may be observed in all lymph-nodes of the body, in the follicles of the intestines, and in young animals also in the thymus. In the bone-marrow the specific cells are destroyed and succeeded by fatty tissue. With exception of a slight diminution in the number of leucocytes, the blood shows no change. When larger animals, such as dogs, were employed the same lesions could be detected. An exposure of a quarter of an hour with a hard tube will suffice to bring about nuclear disintegration within a few hours. If the animals are killed after eight to fourteen days nothing pathological can be detected, which proves that regeneration is equally rapid. It is not at all impossible that the Roentgen rays may behave in a similar manner in man and that they may exercise a distinct therapeutic effect in pseudoleukæmia, leukæmia, lymphosarcoma, and persistent thymus. (Medical News, July 9, 1904.)

SCARLATINAL INFECTIOUSNESS.

In spite of the most painstaking care, scarlet fever convalescents not infrequently communicate the disease to others on their discharge from the physician's care or from the hospital. The cases of scarlet fever that develop under the circumstances are known in English literature as "return cases," which naturally have a most important bearing on the question of isolation of scarlatinal patients and the source of scarlatinal infection. During recent years the supposed infectivity of the desquamating skin in scarlet fever has lost much in importance, and there are now experienced clinical observers who believe that the peeling scales are no more dangerous than clothes and other articles that have come in contact with scarlatinal patients: *i.e.*, that the skin *per se* is not infectious. Perhaps the main reason for this change in belief is the fact that desquamation appears to have no special relation to "return cases." In Aaser's series (Tidsskrift for den. norske lageforening, 1902) of 3800 scarlet fever patients, 79 in all likelihood were infected by discharged patients. We learn that in all these discharged convalescents desquamation had been completed for a week or more: that all were thoroughly disinfected before they were sent out; and,

what is very important, that in about 80 per cent. there were present abnormal, principally inflammatory, conditions in the naso-pharyngeal mucous membrane and in a considerable number in the ears. From his careful observations Aaser emphasizes that there is reason to believe that the virus of scarlet fever, whatever its nature may be, attaches itself especially to the mucous membranes of the nose and throat, as well as of the middle ear, and that isolation of scarlet fever convalescents should be maintained so long as any of these membranes present any signs of abnormal secretions. Furthermore, that desquamation in itself can be no reliable indication as regards contagiousness.

In England "return cases" have received much attention, and as a consequence the opinion is gaining ground rapidly that the infectivity of desquamation has been unduly emphasized. Indeed, so strong has this conviction grown that in some places radical modifications have been made in the methods of administration, and with interesting and instructive results. Killick Millard (Lancet, April 5, 1902) discharged 190 cases before desquamation was completed; 5 of these cases became responsible for "return cases," but, of these 5, 4 had nasal discharges and 1 an open sore behind the ear. In Southampton Lauder instituted a new system of isolation and discharge of the scarlatinal patients in the fever hospitals under his care during 1903 (annual address, Southampton Medical Society, 1904). Stated briefly, the new system aims at protecting mild and convalescent cases by segregation from cases in the acute stages or with complications. Indeed, all complicated cases are isolated. As a result of this innovation, Lauder believes that the number of severe, complicated, and protracted cases has fallen off perceptibly. At the end of the third week cases free from complications are isolated in disinfected quarters, bathed frequently and given daily naso-pharyngeal douches, and then sent home at the end of the fourth week, regardless of the state of desquamation. Lauder compares the results for 1902 (old system) and 1903 (new system). In 1902 the average period of detention in hospital was forty-eight days, in 1903 thirty-four days—a reduction of fourteen days; but the number of "return cases" in each year is the same,—namely, 7, and this works out in 1902 as 4.27 per cent., in 1903 as 2.15 per cent. on account of the greater number of cases discharged in 1903. Of 325 cases discharged in 1903, 33 were free from peeling and complications, and these caused no return cases; 204 were peeling without complications, and 2 caused return cases, and 88 were complicated cases, and of these 5 caused return cases. These last cases were detained in hospital an average of fifty days, while the average stay of the cases in the first two groups was nearly twenty days less. The 204 cases in the second group were returned to 180 houses, containing 744 persons who had not had scarlet fever, 363 being under 15 years of age, but as "return cases" 2 could be traced only to two of these patients,—and very careful attention seems to have been given this point,—the infectivity of desquamation *per se* certainly must be very limited, to say the least. One of the two infecting cases developed a rhinitis on the eighth day after being discharged, and five days later a sister came down with scarlatina. All the 5 infecting complicated cases had had nasal or aural discharges before dismissal from the hospital, and in some of them the discharges reappeared a few

days later. It will be remembered that in these 5 cases all peeling had ceased, and there seems to be no fault to find with the methods of disinfection of the patients or their clothes. Consequently these cases furnish strong evidence of the infectiousness of discharge from naso-pharynx and ears. Lauder suggests that the virus may linger in the tonsillar and other tissues even when it is difficult to detect any abnormal discharge and Aaser recommends the use of hydrogen peroxide in the nose and throat in order to detect minimal degrees of continuing pathological secretion.

Hence the general import of these observations, and others with similar results which are now available, is that the dangers of desquamation have been exaggerated, that at least one very important source of scarlatinal virus is in naso-pharyngeal and aural discharges of convalescents, and that important modifications are demanded in the usual routine methods in the hospital treatment of scarlet fever. Undoubtedly the new method inaugurated by Lauder will be continued by him, because the physicians of Southampton, who followed the departure with interest and presumably also, at least at first, with a reasonable amount of distrust, declared themselves as well satisfied with the results and reconciled to the idea of having peeling cases going about. In addition to its other and greater advantages, this shortening of the period of hospital treatment has the minor one of economy, which is effected when the number of days saved is reduced to the financial equivalent. The partial individual isolation advocated by Lauder has also much in its favor. Certainly the early removal of patients from such specially infected zones, as likely to develop in hospitals, especially when crowded, must tend to limit the chances for the transmission of infection and the development of complications. In scarlet fever each acute case is an active source of infection, primary as well as secondary. Is it not, therefore, rather singular that so little has been done to protect such patients from one another, the mild from the severe, the uncomplicated from the complicated? The logical thing to do is individual isolation until uncomplicated convalescence is well established. Editorial (Journal of the American Medical Association, July 16, 1904).

SCIATICA, KERNIG'S SIGN IN.

Plessi (Gazzetta degli Ospedali e delle Cliniche, April 3, 1904) reports two cases of sciatica in which Kernig's sign (which was originally described in meningitis), occurred with great distinctness. Kernig's sign, as is well known, is the contraction or flexure of the knee and hip joint, which occurs when the patients assume the sitting posture. The patient is unable to extend the lower limbs completely when sitting, and the contraction of the flexor muscle amounts to 135 degrees in slight forms, and 90 degrees in marked cases. In 1898, Netter, of Paris, declared this sign to be pathognomonic of meningitis, and asserted that it occurred in 90 per cent. of all the cases of this disease. This sign has been since then found in typhoid fever, by Cipollina and Maragliano, and this without any meningeal complications. Salomni found it in a case of rigidity of the spine, and Sailer in a case of extensive hæmorrhage of the right hemisphere. In 1902 Magri for the first time found it in a case of sciatica, the patient afterward dying of typhoid fever, without a trace of meningitis. Since then a few cases of sciatica have been reported in which Kernig's sign occurred.

In the present cases the author found the sign in its characteristic form, and observed that it disappeared gradually with the symptoms. He considers Kernig's as a muscular reflex induced by the irritation of the nerve filaments. (New York Medical Journal and Philadelphia Medical Journal, July 9, 1904.)

SCURVY, ETIOLOGY OF.

The author reports the results of his study of a number of cases of scurvy occurring among Europeans and natives at a military camp. The subjects of these cases presented during life spongy, bleeding gums, lassitude, anæmia, breathlessness on exertion, followed later by lameness, associated with synovitis and hæmorrhages, with brawny, indurated swellings in one or both of the lower limbs. The urine was slightly acid. There was marked poikilocytosis. There were no nervous lesions. Death resulted from cardiac failure, and on postmortem the blood was found to be fluid; there were subserous, submucous, subpleural petechiæ. The heart was thin and pale, the right side dilated, and there was excess of serous fluid in the pericardium. Scurvy in adults is not brought about by the absence of any particular kind of food from the dietary, but is more probably a specific infection of bacterial origin. The food used in the camp investigated was of the same quality and kind as that used in other camps in which there was no scurvy. In the Middleberg camp, where the scurvy existed, the sanitary conditions were very poor, and many of the patients were either old or the subject of some neuroses. The infection appears to occur through the mouth, the general system being involved later and secondarily. Food may act as a vehicle under conditions of dirty storage or dirty preparation, and, considering that the disease prevails in inverse proportion to the standard of personal hygiene of the individuals affected, its infectivity would seem to depend on the unsanitary habits, and, perhaps, the unwholesome occupation of those who were its victims. M. Coplans (Lancet, June 18, 1904).

SNAKE VENOMS, LECITHIN AND.

It has been proved by P. Keyes (Hoppe-Seyler's Zeitschrift, April 9, 1904) that lecithin is the chief activator for the amboceptors of cobra poison, since the latter alone is incapable of destroying red blood-cells, but in the presence of minimal amounts of lecithin is capable of doing this. The author and H. Sachs also showed that these forms of blood that were laked by apparently cobra venom alone were really acted upon by a combination of venom and lecithin, since the latter is a constituent of the red blood-cells and of the plasma. Now, although all kinds of blood contain lecithin, yet only certain forms are laked by cobra poison. This apparent contradiction is explained by the fact that lecithin is not bound up to an equal degree in all forms of blood. The method by means of which one may determine the strength with which lecithin is bound up with the rest of the cell, and which will enable one to peer into the recesses of lecithin metabolism, which method is afforded by cobra venom, is indeed a novel and promising one. Thus H. Sachs has shown that, while cobra venom takes the blood of fœtal cows, it has no effect upon that of the adult animal. He concluded that in the former the lecithin is held in loose union and is therefore capable of eliciting the toxic properties of cobra venom. This looser union of lecithin denotes a different degree of lecithin metabolism in the fœtus, forti-

fying the generally accepted hypothesis that lecithin takes an important part in the development and growth of the organism. The author worked with a series of different snake venoms and studied their effect upon the blood of camels, oxen, rabbits, men, and guinea-pigs. The blood of the first three was not affected, and of the last two the blood was laked by different doses of the various poisons. These facts indicate that in different animals lecithin is bound up in varying degrees, and that, in any one animal where blood is susceptible to the toxic influence of snake poison, the venoms of the different snakes have a varying avidity for the lecithin. In studying the effect of Calmette's antivenin, the author found that the protective influence of this serum varies in the same way with the different poisons and in the same order as these are capable of laking the red blood-cells. These researches are valuable, apart from their own interest, for the light which they throw upon certain obscure problems in physiological chemistry, particularly upon the question of lecithin metabolism. These researches show at least that the lipoids are found in the organism, not free, but stored up in some chemical union. (Medical News, July 23, 1904.)

STERILIZATION OF THE HANDS.

In our July issue we presented an abstract of Leedham-Green's paper on this subject, in which sublamine was said not to compare in efficiency with the Fürbringer alcohol-sublimate method. Dr. Green was doubtless not aware of the fact that Fürbringer had himself recommended sublamine as a substitute for the bichloride in his alcohol-sublimate method.

The writer takes issue with a similar criticism by Schaeffer, and states that he had committed the error of testing sublamine against bacterial suspensions instead of testing its germicidal powers on the skin.

"When we tested the action of antiseptics on solutions, which were not pure, but contained organic substances, and on bacteria present on the skin," says the author, "we soon recognized, as was to be expected from theoretical considerations, that the action of antiseptics in pure solutions and in the presence of organic materials is totally different. For instance, the most effective disinfectant in pure solutions is chlorine-water; but any such intense action as it manifests on bacteria is utterly impossible in the presence of organic substances, as on the skin." Krönig (Monatshelfte für Geburtshilfe und Gynäkologie, vol. xx, No. 1).

STOMACH DISORDERS, TREATMENT OF UNCOMPLICATED.

A diet in proper physiological proportions should be arranged and the use of cane sugar in food in all forms minimized. The use of indigestible articles, such as hot bread, pastry, pickles, pork, cabbage, etc., forbidden. Attention to personal hygiene is necessary, such as eating slowly and regularly and the taking of the proper amount of exercise. If physical conditions render this impossible, massage must be substituted. The bowels must be regulated dietetically, hygienically, or medicinally.

Antiseptic treatment to the stomach is undoubtedly of much service. A great many antiseptics have been employed, notably carbolic acid, creosote, the salicylates, etc. The writer personally prefers the physiological ones, such as dilute HCl, or dilute HNO_3; 15 to 20 drops of the dilute acids in half a tumbler of water, fifteen minutes before meals.

Attention must be paid to a supply of drinkables. In addition to the fluid taken as soups, etc., with the food, it is consumed as water, tea, coffee, and alcohol, chiefly. Water at a proper temperature does no harm and the system demands it freely in its metabolic processes. It is known that under physiological conditions it remains but a short time in the stomach, and that it has practically little or no effect on gastric acidity, only temporarily altering its percentage. In the main, the stomach is a secretory, not an absorptive, organ, only sugars, slightly (von Mering), and alcohol, with its dissolved products, being absorbed in this organ.

Concentration favors gastric absorption. On the other hand, dilution favors intestinal absorption, and as that is where most absorption takes place, water in large quantities is beneficial.

Apart from the stimulating effects of tea and coffee on the central nervous system, producing insomnia and palpitation, if properly made and not too strong, their effects on digestion are almost *nil*. Their baneful effects lie, not in the alkaloids *per se*, but in the sugar taken with them.

Alcohol is absorbed by the stomach, together with what it may carry in solution; in weak solutions it is stimulating: but in strong solutions it is irritating and mucus-producing, and if long continued permanent anatomical changes in the stomach wall will take place. This physiological action of alcohol in weak solutions in the permanently dilated stomach is interesting, as it shows Nature's attempt at compensation. In those conditions the yeast fungus is invariably present, forming alcohol from sugar. W. E. Deeks (New York Medical Journal and Philadelphia Medical Journal, July 2, 1904).

STOMACH, HUMAN, POSITION OF THE.

The former teaching that the lowest part of the stomach is formed by the greater curvature was founded upon observations on the cadaver, and is not now generally received. The writer, extending his researches upon the digestive movements from animals to man, has confirmed the modern view by the x-rays. From the shadow cast by a normal human stomach containing food with bismuth subnitrate, it can be seen that as digestion proceeds the longitudinal and oblique muscular fibers contract, and lift up the organ toward the fixed cardiac orifice; hence in the later stages the pylorus is the lowest point, and, when it opens, the fluid will pass out of the stomach by gravity. W. B. Cannon (American Journal of Physiology, February, 1904).

SURGICAL SCARLATINA.

There are about 174 cases of surgical scarlatina reported in the literature more or less in detail, and passing mention is made of many more. Operations and wounds of all kinds, as well as inflammatory processes, are supposed to predispose to scarlatinal infection.

Surgical scarlatina is said to differ from medical scarlatina in five ways: 1. The large number of adults attacked. 2. The shorter period of incubation. 3. The mild angina or absence of angina. 4. The fact that the eruption begins at the wound or in some other unusual region. 5. The slightly precocious desquamation.

Proof of the existence of a special form of scarlatina occurring in connection with wounds rests upon the large number of cases recorded in which an eruption resembling that of scarlet fever followed some injury, and upon the frequency of epidemics of scarlet fever

among surgical cases, in the days before complete isolation of fever cases was practiced.

Careful examination of the reported cases confirms the view held by most French writers that the eruption in question is often due to septic infection, and is not scarlatinal; and that the variations of so-called surgical scarlatina from the typical form of scarlet fever are not due to the unusual mode of infection, but to the difference in the infectious agent. In the cases where the disease was undoubtedly scarlatina there is no convincing evidence that the relation between the wound and the scarlet fever was anything more than one of coincidence. There is, as yet, no convincing proof in the literature that surgical scarlatina is anything more than scarlet fever in the wounded. Alice Hamilton (American Journal of the Medical Sciences, July, 1904).

TRAUMATIC RUPTURE OF INTERNAL VISCERA WITHOUT EXTERNAL SIGNS OF INJURY.

Traumatic rupture of internal viscera, with little or no external evidence of injury, is much more frequent than usually supposed, and every case in which such injury *possibly* exists should be watched most carefully; so that, in event of the symptoms becoming aggravated, an exploratory operation may be performed in time to save the life of the patient.

Much reliance should not be placed on the pulse or temperature in this class of injuries, as they do not afford a safe guide within the period in which operation will be of avail in saving life.

The blood-count affords early evidence of severe injury, and it should be used in every case in which internal injury is suspected.

Rigidity of the abdominal muscles, attended with dullness, even slight in degree, and local tenderness, are most valuable points in the diagnosis of these injuries, and where they exist, and especially if a blood-count shows an active leucocytosis, operation is demanded, and no time should be lost in performing it.

It is very hard to convince the patient and his friends of the actual condition, and they will invariably plead for delay. The serious condition should be early pointed out, and every effort made to secure consent to operate while the condition of the patient renders success probable.

These cases are almost inevitably fatal without operation, and the effect of an exploratory incision while the patient is in a fair condition is not serious enough to counterbalance the advantages to be gained if rupture of any of the organs is found to exist. W. G. Weaver (Pennsylvania Medical Journal, July, 1904).

TUBERCULOSES, ANIMAL, AND THEIR RELATION TO HUMAN HEALTH.

At the present time the weight of the available evidence is in favor of the view that the chief source of infection in children, as well as in adults, is the human tubercle bacillus, and that the portal of entry is the respiratory tract. It has, however, been proven conclusively that the bovine tubercle bacillus is responsible for a certain proportion of the deaths from tuberculosis in children, and there is strong evidence at hand to show that the number of children infected from bovine sources is quite large. Whether the number be large or small, it is none the less our duty to guard against the use of milk from tuberculous cattle for food.

It is without question most important

to build sanatoria for treatment and cure of early cases of tuberculosis; to form societies which spread information concerning the disease and its prevention to the sick and well alike; to build hospitals for hopeless and dying cases, in order to remove them from their homes at the period of greatest danger to those around them; to pass laws against promiscuous spitting; to regulate ventilation and overcrowding of tenements and factories; to encourage good living among the masses in every way possible. All of these things are useful and necessary, but we will still fail in doing our whole duty, if we neglect to guard against food-products from tuberculous animals and to make every effort for the eradication of tuberculosis from cattle. M. P. Ravenel (Montreal Medical Journal, June, 1904).

TYPHOID FEVER, COMPLICATIONS AND SEQUELÆ.

While typhoid fever is a general infection in the course of which certain changes occur, their degree and chief point of localization are variable, and depend upon the previous condition and physical peculiarities of the patient, the brunt of the infection falling upon those organs which through pre-existing disease or hereditary tendencies are least resistant. Therefore to intelligently interpret the significance of each symptom as it arises and promptly meet each exigency an intimate acquaintance must be had with the previous history and hereditary weakness of the individual. While typhoid fever is always due to an infection with the typhoid bacillus, the condition produced by the growth of one organism favors the growth of others, such as the tubercle bacillus, the streptococcus, and the pneumococcus. M. P. Hopkins (Northwestern Lancet, July 15, 1904).

URINARY TUBERCULOSIS IN WOMEN, SURGERY OF.

Tuberculosis of the urinary system is a surgical disease, being, as a rule, unilateral and often the only focus of tuberculosis in the body. If the disease is bilateral and there are no pronounced symptoms referable to the kidneys, the treatment should be that usually accorded tuberculosis of the lungs, viz.: suitable climate, nutritious diet, and proper regulation of the patient's rest and exercise; but if one or both sides begin to cause marked local or general manifestations surgical intervention is often of great benefit.

In case of bilateral disease or in associated disease of the lungs the anæsthetic is of great importance. Local cocaine anæsthesia may be used for nephrotomy, and nitrous oxide gas for nephrotomy, nephrectomy, or nephro-ureterectomy. Thickened ureters are generally tuberculous and should be removed with the kidney if the patient's condition justifies.

Bladder disease in these cases is often nontuberculous, and removal of the diseased area should not be attempted at the first operation. If the bladder fails to heal within a year under ordinary methods of cystitis treatment, the disease is probably tuberculous, and if not occupying more than half of the bladder it should be excised. G. L. Hunner (Columbus Medical Journal, June, 1904).

UTERINE FIBROMYOMATA, COMPLICATIONS AND DEGENERATIONS OF.

Fibroids which are producing symptoms, and all fibroids except those designated as small (especially when subserous or intramural), should be removed, because the risk to the patient from operation is far less than that from the tumors themselves.

In view of the sarcomatous changes, carcinomatous associations, and complications of uterine fibromyomata, early removal is indicated when they are of sufficient size to produce symptoms. Small uncomplicated tumors not producing symptoms do not require early treatment.

Thorough pathological examination should be made of all fibroids for evidence of malignancy. Particular study should be devoted to those tumors which are necrotic, or both, as among these are found the largest proportion of malignant changes. Ellice McDonald (Albany Medical Annals, July, 1904).

WHOOPING-COUGH, PATHOLOGY AND BACTERIOLOGY OF.

G. Arnheim (Archiv für pathologische Anatomie, etc., clxxiv, 530, 1904) has been able to study eight cases of whooping cough from the standpoint of their pathology and bacteriology. In all of them he was able to isolate the organisms first described by Czaplewski as polybacteria. He comes to the following conclusions regarding the disease: It is an infectious catarrh of the mucous membrane of the respiratory tract, and especially of the trachea; the characteristic organisms are to be found in the bronchial secretions and the mucous membrane; their arrangement is characteristic. Desquamative catarrh is very frequent. In inflammations of the lungs moderate quantities of the bacteria are to be found within the broncho-pneumonic foci. The production of the cough paroxysms is due to the position of the colonies in the typical cough situations. The paroxysms are to be looked upon as curative processes, as with the sputum secreted numerous bacteria are thrown off. The secretion becomes viscid during the course of the disease probably because of the influence of pus organisms which give rise to an increase of chemotaxis of leucocytes. After all the colonies of bacteria are thrown off, complete recovery follows. (American Medicine, July 23, 1904.)

X-RAY TREATMENT, RESULTS OF.

The therapeutic field of greatest usefulness of the x-ray is with superficial epitheliomata, rodent ulcer, and lupus vulgaris, when the area involved is conspicuous, as on the face or neck, and where a cosmetic result is particularly to be desired. Healing by the x-ray leaves the smallest and least perceptible scar, for, when properly applied, it destroys only diseased tissue, and particularly commends itself for use in those localities where it is undesirable to sacrifice the surrounding tissues.

The x-ray is very efficacious in many obstinate cases which have resisted the ordinary methods of treatment, such as acne rosacea, chronic localized patches of eczema and psoriasis, lupus erythematosus, and kindred skin diseases. The results in tuberculous glands when no suppurating focus is present are encouraging, and the enlarged masses of glands in Hodgkin's disease appear to be susceptible to the treatment.

The x-ray should not be employed in any operable, deep, malignant growth, with two exceptions: First, as pointed out by Coley, where a surgical operation would sacrifice an extremity, and even in this case the value of the x-ray is uncertain, and is determined by a few weeks' trial. Second, as mentioned by Pusey, with a view to limiting the operation by checking the growth, when immediate operation is inadvisable.

The x-ray may be of service even in inoperable malignant growths, by reliev-

ing pain, diminishing discharges, and lessening their offensiveness, and in many cases life may be prolonged in comparative comfort for a considerable period of time. Furthermore, from these apparently hopeless cases a number of remarkable improvements and a few recoveries have been reported. The x-ray should be used as a prophylactic against return after all operations for the removal of deep malignant growths.

The area of exposure should be wide, and the intensity and quality of the rays should be adapted to each case. S. B. Childs (New York Medical Journal and Philadelphia Medical Journal, July 2, 1904).

YELLOW FEVER IN TEXAS.

The results obtained through the efforts to combat the yellow fever epidemic at Laredo go to demonstrate that the mosquito *(Stegomyia fasciata)* is the only means of transmitting yellow fever, and that the efforts to destroy the same were productive of much good, greatly limiting the number of cases. The measures taken to prevent the reproduction of the *Stegomyia fasciata* or other mosquito, by oiling all water-containers and deposits of stagnant water, were completely successful.

It was demonstrated that to control an epidemic of yellow fever which has gained considerable headway (and such is the condition usually met with), it is necessary to have absolute power to enforce sanitary measures until such time as the people are educated up to the importance of such measures.

Inasmuch as the *Stegomyia fasciata* can only become infected by biting the patient during the first three days of the disease, it is of vital importance that cases of fever be reported at the earliest possible moment, so that they may be screened and the mosquito prevented from biting them. Such being the case, an efficient system of inspection is necessary, especially where there is a tendency to hide cases. It is impossible to obtain good results without a mosquito-proof yellow fever hospital.

The difficulties of handling an epidemic are increased when such outbreak occurs on the frontier. Arrangements should, therefore, be entered into by treaty with contiguous foreign countries so that, under such circumstances, sanitary measures may be carried out jointly by the countries interested, for mutual protection.

Insistent and continued efforts should be made through the public press and other available means to educate the people within the sphere of influence of the *Stegomyia fasciata,* so that they will learn to protect themselves against the invasion or spread of yellow fever among them by destroying the means for the propagation of said mosquito, and by protecting themselves against the mosquito by efficient screening. Above all, the existing fear in the medical profession, as well as among the laity, of declaring the existence of yellow fever should be eradicated. If the first case presenting the slightest suspicious symptoms of that disease were promptly made public, and the proper modern precautions taken, there would be no danger of the disease spreading. In fact, the public should be taught to acknowledge the existence of yellow fever in their midst with the same equanimity as in the case of measles or scarlatina. G. M. Guiteras (Journal of the American Medical Association, July 9, 1904).

YOHIMBIN: ITS USE IN THE TREATMENT OF EYE, EAR, NOSE, AND THROAT DISEASES.

A 2 per cent. solution of yohimbin-spiegel, either alone, or in equal mixture with adrenalin chloride solution, dropped into the conjunctiva *cul-de-sac* from five to six times in ten or fifteen minutes, will produce both corneal and conjunctival anæsthesia. Marked anæsthesia of the cornea lasts from thirty to forty-five minutes after the last instillation; the conjunctival anæsthesia is at no time so profound as the corneal, and disappears several minutes before the latter.

There is a slight stinging sensation immediately following the instillation, which becomes less and less with each instillation, finally disappearing altogether. The eye becomes immediately suffused and continues red for more than an hour after the last instillation. There is no widening of the palpebral fissure. There is a moderate, but marked, dilatation of the pupil, which comes on several minutes earlier after the last instillation with adrenalin and yohimbin in combination than with yohimbin alone, but lasts in either case from fifteen to twenty minutes.

The slight blurring of the vision for far and near appears to be due to spherical aberration rather than to paresis of accommodation. Yohimbin alone or in combination with adrenalin is an exceedingly mild mydriatic. Adrenalin when mixed in equal parts with yohimbin in 2 per cent. solution loses its constricting power upon the blood-vessels of the palpebral and bulbar conjunctiva. This last-mentioned fact suggests the idea that yohimbin may be an antidote to adrenalin chloride.

In view of the congestion caused by yohimbin, it cannot be considered the ideal anæsthetic for operations involving the conjunctiva or muscles. As an anæsthetic in cataract extractions and in iridectomy it would probably be effective. On account of the congestion produced by it yohimbin would be inferior to cocaine as an anæsthetic in all operations upon the eye. J. H. Claiborne and E. B. Coburn (Medical News, July 9, 1904).

Books and Monographs Received.

The editor begs to acknowledge, with thanks, the receipt of the following books and monographs:—

The Cause and Prevention of Consumption, Circular Issued by the Illinois State Board of Health, 1904.——Report of the Philadelphia Pædiatric Society Milk Commission for the years 1902-03. 1904.——Modern Synthetic Medicinal Products. Part II. By Virgil Coblentz, 1904.——Results of Borax Experiment. United States Department of Agriculture, Washington, D. C. 1904.——The Forests of the Hawaiian Islands. By William L. Hall. United States Department of Agriculture, Washington, D. C. 1904.——Agricultural Exports of the United States, 1851-1902. By Frank H. Hitchcock, United States Department of Agriculture, Washington, D. C. 1903.——Investigations of Rusts. By Mark A. Carleton, United States Department of Agriculture, Washington, D. C. 1904.——Turkeys: Standard Varieties and Management. By T. F. McGrew, United States Department of Agriculture, Washington, D. C. 1904.——The Cream Separator on Western Farms. By Ed. H. Webster and C. E. Gray, United States Department of Agriculture, Washington, D. C. 1904.——Experiment Station Work, XXVI. United States Department of Agriculture, Washington, D. C. 1904.——St. Louis Universal Exhibition. Agriculture and Agricultural Education in Belgium, 1904.

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DIGITALIS AS AN ADRENAL STIMULANT IN THE TREATMENT OF CARDIAC DISORDERS.

BY CHARLES E. DE M. SAJOUS, M.D.,

PHILADELPHIA.

THE physiological action of digitalis, with the secretion of the adrenals as its predominant factor, was reviewed in the preceding issue of this journal.[1] Evidence was adduced to show that this valuable drug did not act, as is now generally believed, directly upon the heart, and that, conversely, the increased

power of the contractions witnessed was due to a direct action of the secretion of the adrenals on the heart-muscle. This secretion was traced back from the heart to the adrenals, and its effects shown to concur with those of digitalis. Identical effects were also shown to occur when the pituitary body was electrically stimulated—a result explained by the fact, sustained experimentally, that the secretory nerves of the adrenals originated in the pituitary body. Evidence was submitted to the effect that it was by exciting directly the origin of these nerves in the pituitary body that digitalis increased the production of adrenal secretion, and, through the latter, the power of the heart-muscle.

Another property ascribed to digitalis was that of raising indirectly, through the foregoing process, the functional activity of the vasomotor center, the stimulating agent being, in this case, a compound formed by the adrenal secretion (after traversing the heart) with the oxygen of the pulmonary air, viz.: adrenoxin. To this action of digitalis I ascribed the so-called "cumulative" effects of the drug, the morbid action on the heart being, as shown by W. H. Porter, "excessive contraction of the cardiac arterioles and consequent arrest of the nutrition of the myocardium."

In the light of this interpretation of the physiological action of digitalis, what are its clinical indications and contra-indications? Digitalis is now regarded as one of the most valuable agents of our pharmacopœia, but if, as I believe, it produces its main effects by enhancing the secreting power of the adrenals, its therapeutic value must greatly exceed any estimate so far formed. Indeed, it affords us the means of regulating, at will, the functional activity of the heart-muscle and, simultaneously, the caliber of all the arteries of the organism.

The oral administration of adrenal extractives has not so far yielded satisfactory results. Oliver and Schäfer,[2] having observed that the active principle of the suprarenal capsules was not destroyed *in vitro* by gastric digestion, it was generally assumed that the various preparations of these organs could be administered by the mouth. Swale Vincent[3] found, however, that large quantities of decoctions of the gland, or of the gland itself, produced no noticeable effect in animals. Grünbaum[4] performed similar experiments on himself, using pulverized suprarenal tabloids, but observed no rise of blood-pressure. Nor were effects obtained in a woman suffering from Addison's disease, although 120 grains of fresh gland were administered daily more than a week. How account for these negative results? As interpreted from my standpoint, *in vitro* experiments do not present a true picture of the conditions that prevail in the stomach, and the suprarenal active principle is destroyed in this organ during the chemical elaboration of hydrochloric acid. Adrenoxin (the "oxidizing ferment" of Schmiedeberg, Jaquet, Salkowski, and other chemists), as previously stated,[5] is an indirect factor in this process, and when a sufficiently powerful reducing agent is ingested it finds in this compound an ample source of oxygen. As is well known, suprarenal extractives are not only very powerful reducing agents, but they also lose their physiological properties when oxidized.

Yet, Grünbaum obtained a rise of blood-pressure of from 75 to 91 millimeters Hg. with suprarenal tabloids "in a pregnant woman who had some pigmentation, vomiting, great muscular weakness,—as shown by the ergograph,—and a very low

blood-pressure." As this effect was not maintained on omitting the use of the tabloids, it was evidently due to the latter. This apparently controverts the previous statement in this connection. Such is not the case, however. The last patient was obviously suffering from *advanced* adrenal insufficiency. The secretion of the adrenals being inadequate, adrenoxin was formed in insufficient quantity in the lungs and the body at large was itself inadequately supplied with its vital pabulum, including the stomach. More or less of the suprarenal extract passed this organ unharmed therefore, and provoked the vasoconstrictor effects observed. This accounts, it seems to me, for the marked effects observed by some observers and the total absence of results witnessed by others, in the various disorders in which these agents have been tried. It shows, moreover, that, while we cannot say with some authors that suprarenal extractives never give rise to characteristic effects when administered by the mouth, the likelihood that such effects will occur is governed by the condition of the patient. It follows, therefore, that we must consider the use of the various suprarenal extractives by the mouth as an unreliable method.

The same cannot be said, however, of the *intravenous* injections. Administered in this manner, suprarenal extractives in sufficient quantities always increase the power of the heart and raise the blood-pressure. But I may now recall that the secretion of the adrenals likewise enters the *renous* circulation,—since the suprarenal veins open into the inferior vena cava,—and, also, that Cybulski, Langlois, Biedl, and Dreyer have conclusively shown that the blood of the suprarenal veins provokes effects identical to those caused by suprarenal extract. Applying these facts to the action of digitalis, it becomes evident that if this drug produces its effects by stimulating the adrenals, each dose of digitalis is equal to an intravenous injection of suprarenal extract.

Digitalis has this very great advantage over suprarenal extractives, however: While the effects of the latter are ephemeral, those of digitalis are lasting. "The effects of intravenous injection upon the blood-pressure passes off in a few minutes," writes Schäfer,[6] referring to suprarenal extract. Osborne[7] also states that "the action of this substance in raising the blood-pressure is immediate," but that it "lasts but a part of a minute." The action of digitalis in this particular is familiar to all clinicians: it is owing to the perpetuation of its effects that these are thought to be "cumulative," while, as is well known, its action on the heart and vascular system persists days, and even weeks at times, after its use is discontinued. "There is as yet no convincing clinical proof," wrote Edward Martin and M. E. Pennington[8] recently, referring to adrenalin chloride, "to the effect that the drug is as efficacious when used on man as laboratory experiments would lead us to suppose." The evanescence of the effects of all these products readily accounts for this fact. Digitalis, on the other hand, by *stimulating the mechanism through which the adrenal secretion is produced* insures effects which could only be obtained by means of a large number of intravenous injections of suprarenal extract given in rapid succession and at very few minutes' intervals.

That digitalis *does* stimulate the adrenal system is shown by the fact that the characteristic effects of this drug cease when, as demonstrated by Bezold

and subsequently by Boehm,[9] the greater splanchnic nerves are divided. These nerves, we have seen, contain the secretory fibers of the adrenals.

These few facts are submitted mainly to emphasize the underlying principle which should, it seems to me, govern the clinical use of digitalis, namely: Its *indirect* influence, *through the adrenals*, on the heart and vasomotor system. The practical bearing of this principle may be illustrated by the following few examples:—

1. In uncomplicated dilatation of the heart, failure of the cardiac muscle to contract adequately, *i.e.*, in loss of cardiac *power*, the secretion of the adrenals would logically be indicated, since we have seen that, as does suprarenal extract, it increases this power to a greater degree than any agent known. We know that this is precisely where digitalis is at its best, particularly when the *right* heart is dilated —the side first reached by the adrenal secretion.

2. The word "uncomplicated" must be qualified here, however. We have a valvular lesion with dilatation, the heart doing its best to do its work notwithstanding the obstruction. Yet the increased resistance—mitral in most cases—keeps it dilated, and the organ is already showing *slight* signs of hypertrophy. It requires help—more "dynamism," as Brown-Séquard called it fifty years ago when he advanced the view that the main factor of the heart's contractile energy was in its *venous* blood. What greater help could we give it than the secretion of the adrenals, its main source of contractile power? Digitalis, we know, is of great value just in such cases.

3. Mitral stenosis or insufficiency are types of cardiac disorders to which reference has just been made. Yet in many instances the valves of both sides of the heart are diseased and passive resistance to the admission of blood to the *right* heart occurs, causing passive hyperæmia and venous stasis. The secretion of the adrenals raises the general vascular pressure, thus forcing more blood *toward* the heart; and *slows* cardiac action,—thus giving it more time to dilate and to admit more blood. The relief digitalis affords in such cases is well known.

4. Conversely: We have to deal with a heart which has reached the stage of full compensation: *i.e.*, hypertrophy. It has succeeded—too well perhaps—in mastering the valvular obstruction in the sense that it has acquired the power of forcing a relatively adequate proportion of blood past the obstruction. Would an increase of adrenal secretion in the blood, which would raise the vascular pressure, *i.e.*, the peripheral *resistance* to the circulation of blood, and thus increase the labor of the heart, benefit such a case? We know that digitalis is harmful under these conditions, and that it can actually promote hypertrophy.

5. The case is one of arteriosclerosis, with more or less advanced calcification of the aorta and of the coronaries perhaps, and also of a few or many arteries (of undeterminable limits in the living subject),—all complicating a cardiac disorder. The pulse is hard and small, indicating circulatory resistance somewhere. Would an agent such as the secretion of the adrenals, which increases the general vasoconstriction and, *simultaneously*, the power of the heart's contractions—thus greatly augmenting the centrifugal pressure of the blood-stream—be indicated? Digitalis is known to be unsafe in such cases.

6. The case is one of aortic regurgitation. Owing to a lesion of the aortic

valves, a reflux of blood into the ventricle occurs during diastole. The adrenal secretion, by *slowing* the heart, would lengthen the diastole and afford more time for regurgitation; again, by causing general *vasoconstriction*, it would increase the resistance to the blood-current and help to detain the blood in the ventricle. Would it not tend greatly to increase the trouble—as does digitalis?

Other illustrations might be vouchsafed, but they would sustain the view I ventured to advance some time ago,[10] viz.: that "digitalis is probably the most perfect cardiac stimulant of our pharmacopœia, but only because, better than any drug, it enhances the activity of the pituitary body, which, in turn, so stimulates the suprarenal glands as to bring them to their highest functional possibilities."

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ABDOMINAL PAIN OF INTESTINAL ORIGIN.

The chief value of abdominal pain as a diagnostic symptom in abnormal intestinal conditions is not only to call attention to the fact that the patient is suffering from an intra-abdominal disorder of greater or less severity, but also in the class of cases requiring surgical intervention for their relief to indicate to the surgeon the locality of the trouble; hence it becomes the duty of the physician in all cases in which severe abdominal pain is a prominent factor to make careful notes of the patient's condition and symptoms when he is first seen, to refrain from the administration of narcotic and cathartic drugs until a surgeon when practicable has seen the patient, a diagnosis made, and a definite line of treatment decided upon.

It must be constantly kept in mind that a severe, sharp, and persistent abdominal pain almost invariably means peritoneal involvement provided the chest has been carefully examined and its diseases excluded, and that sudden cessation of such a pain accompanied by a rise of pulse-rate and increased frequency of the respiration with or without a lowering of the body temperature, usually denotes gangrene of the gut and its perforation. Many lives will be saved and thousands of others made more comfortable when physicians generally come to recognize that in all cases of persistent abdominal pain of obscure origin exploratory operations should be performed, for it has been the author's experience that a cause always does exist when such a pain is present, and that it is usually found with ease when looked

for; in other words, when in doubt operate. F. H. Wiggin (Lancet, July 23, 1904).

ACNE, X-RAY TREATMENT OF.

The writer believes that the x-ray treatment of acne meets the indications more satisfactorily than anything else. Relapse is not frequent as in older methods, and is slight. No burns of any serious degree are necessary during the treatment. If the treatment is not forced to the extent of a burn, there is probably no danger of atrophy of the skin.

No reaction should be produced beyond a mild erythema, and this degree should be reached slowly. It is not necessary to produce an erythema, but if the treatment is carried to this degree the result will be hastened. The hair, eyes, and eyebrows must be carefully protected.

A tube with a vacuum which will back up a two and one-half inch air gap, at a distance of from ten to twelve inches, with a current of from 2 to 5 ampères for from five to ten minutes on the area treated will probably give the best results.

In the average case, about three months' time and twenty to thirty treatments will be required to produce a cure. G. E. Pfahler (Journal of the American Medical Association, August 6, 1904).

ANÆSTHESIA, CHEMISTRY OF.

A valuable study of certain physical and chemical properties of solutions of chloroform in water, saline, serum, and hæmoglobin was made by the authors. They set out with the supposition that the anæsthetic power of the hundreds of anæsthetics is dependent upon some general type of interaction between the anæsthetic and the active part of the cell. As the result of their experiments they draw the conclusion that chloroform forms an unstable chemical compound or physical aggregation with the proteids experimented with, and that it is carried in the blood in such a state of combination. Anæsthesia is due to the formation of compounds of chloroform and other anæsthetics with proteids, which compounds limit the chemical activities of the protoplasm. The compounds are unstable, and remain formed only so long as the pressure of the anæsthetic in the solution is maintained. Such compounds are formed not only by hæmoglobin, but also by serum proteid; and hence the position taken by the anæsthetic in hæmoglobin is not that of respiratory oxygen. This is further shown by the fact that the oxygen-carrying power of hæmoglobin is not interfered with in the presence of chloroform. The facts upon which the authors rely as proofs of the formation of the above compounds in aggregates are as follows: Chloroform has a much higher solubility in serum or hæmoglobin solutions than in saline or water. Even in dilute solutions at the same pressure the amount of chloroform dissolved in serum or hæmoglobin solution is considerably higher than in saline or water. The curve of pressures and concentrations in the case of water and saline is a straight line, while in the case of serum and hæmoglobin solution it is a curve, showing association at the higher pressures. In the case of serum, chloroform causes a marked opalescence, and also a slow precipitation at room temperature, and at body temperature a rapid, though incomplete, precipitation. In the case of hæmoglobin, 1 ½ to 2 per cent. of chloroform causes a change of color and commencing precipitation at room temperature, which becomes almost complete in the uttermost at 40° C., while 5 per cent. and over causes complete precipi-

tation at 0° C. The relations between chloroform pressure and concentration in solution have been worked out throughout a long range, from below the anæsthetizing values (8 to 10 millimeters) to nearly saturation in the case of water, saline, and serum. Attention is drawn to the important physical fact that with the same percentage of chloroform in the air breathed, serum or hæmoglobin (therefore the blood) will take up much more chloroform than would water or saline under similar conditions. Thus, at the anæsthetizing pressures, and at 40° C., the coefficient of distribution in the case of water and saline is approximately 7.3; at room temperature (15° C.), these coefficients become 8.8 and 17.3, respectively. B. Moore and H. E. Roaf (Medical News; from Proceedings of the Royal Society, May 28, 1904).

APPENDICECTOMY, CLAMP AND CAUTERY IN.

The abscission of the appendix and disposition of the stump are the two most important steps in appendicectomy. The method probably employed by most surgeons is to ligate the meso-appendix and the neck of the appendix, invaginate the stump into the cæcum after treating it with some antiseptic, and secure it by a purse-string or Lembert sutures. Another much used method consists in turning down a cuff of peritoneum, pulling up the other coats and ligating these at the base, abscinding, permitting the stump to retract, and suturing the peritoneal cuff over the stump. The writer calls attention to objections attendant upon both of these methods. A circular ligature about the base of the appendix, either internal or external to the serosa, does not permit of exploration to determine the patulency of the canal of the stump. Should such a ligature be placed beyond a stricture, conditions are established favorable to a fresh attack of inflammation. Some surgeons do not apply an external circular ligature, but cut the appendix, compress the proximal end, and, after sounding the canal, invaginate, securing the stump with Lembert or purse-string sutures. This method is especially dangerous when the tissues are thickened or friable, or, if there is extensive suppuration, for in such conditions there is great likelihood of escape of the contents of the appendix or cæcum. The writer advocates the use of a light clamp with broad, accurately fitting shields to be applied to the base of the appendix close to the cæcum. Such an arrangement would preclude the possibility of pus from the appendix or cæcal wall contaminating the neighboring serosa or floating into the peritoneal cavity. The appendix should then be severed with the cautery just above the clamp, the shields protecting the neighboring structures from the heat. Whatever fluid contents that might have escaped will have been rendered sterile by the cautery. When the shields and clamp have been removed, a thin, seared edge remains which may readily be invaginated. Additional advantages claimed for this method are that the shields hold back coils of intestines, hæmorrhage is minimized, and the time of operation materially shortened. J. R. Eastman (American Journal of Obstetrics, July, 1904).

APPENDICITIS.

Both medicine and surgery have their particular sphere in the treatment of appendicitis, and when this fact is realized efforts to reduce the mortality will be more successful. Lives are needlessly sacrificed by the habit of indiscriminately operating upon every case, and

lives are sacrificed by placing entire dependence upon drugs. Each case is a law unto itself. Ninety-nine per cent. of simple catarrhal appendiceal cases will recover under good nursing, absolute rest, and conservative, judicious, medical treatment. As more than 50 per cent. of all cases of the disease are of the mild, catarrhal nature, it follows that over half of all cases of appendicitis will get well without operation. Abscess cases, perforating cases, and relapsing cases are best treated by surgery. T. H. Baker (Louisville Monthly Journal of Medicine and Surgery, August, 1904).

APPENDICITIS, INFLUENZA AS A CAUSATIVE FACTOR IN THE INCREASE OF.

Appendicitis has increased in the past five years much more rapidly than in either of the previous five-year periods studied. The accessory cavities are more frequently attacked, and, when diseased, more likely to be aggravated by influenza, than by other diseases.

There is more than a possibility of the existence of chronic intestinal influenza, therefore a probability of its causative relation to appendicitis. Philip Marvel (Journal of the American Medical Association, July 30, 1904).

APPENDICITIS, MEDICAL TREATMENT OF.

The writer opposes the routine surgical treatment of appendicitis because of its direct antagonism of physiological principles. Because of the fact that constipation always accompanies appendicitis, and that all patients affected by this disease suffer from constipation, he concludes that the appendix is, perhaps, the governing center of the secretory intestinal functions, and, for this reason, as well as for other reasons, he is strongly opposed to the new practice of surgery which deprives of a healthy appendix persons coming under the knife. At the beginning of an attack of appendicitis he directs his attention carefully to the removal of fæcal stasis. His preliminary treatment is as follows: 1. The administration of salicylate of sodium,—dose, 0.15 centigram, to be given twice within the time of one hour. The salicylate is a cholagogue and an antithermic. In order to avoid the irritating action of the salicylate on the gastric mucous membrane, he uses an excipicus—Vichy water. 2. Three hours after the administration of the salicylate, calomel in doses of 0.05 centigram is given, to be taken one hour apart, until the first intestinal evacuation occurs. Calomel acts as an intestinal antiseptic, as a cholagogue, laxative diuretic, and as a stimulant of the pancreatic secretions. The necessity of relieving pain, internal congestion, depression of the nervous system, and high temperature have induced the writer to add to the symptomatic treatment of appendicitis the use of warm balneation. The warm bath produces a general tonic sedative effect on the nervous system: it equilibrates thermogenesis: it decongests the internal organs, produces analgesia, and relieves all pain of a colicky type. Besides, it has an antitoxic effect, since it increases the reactive processes of metabolism, produces free exudation, and relieves the iscuriæ paradoxæ. The temperature of the water varies from 25° to 40° C. During the bath small doses of cold champagne are given. The hot pack may be substituted for the hot bath. As an adjunct to the relief of constipation an enema of warm water and sodium chloride—solution, 5 per cent.; temperature, 18° to 28° C.; quantity, 400 drachms—to be injected at a

low pressure, is given at the beginning of the attack. The infective cause of appendicitis is attacked by intramuscular injections of 1 cubic centimeter of the following solution every two hours: Carbolic acid, 0.20 centigram; water, 10 grams; pure alcohol, 2 grams. A diminution of temperature and of the nervousness peculiar to the disease usually takes place after the second injection. The results obtained by the author from this treatment are such as to warrant its adoption in cases in which no possibility of surgical intervention exists. Enrico Castelli (Journal of the Association of Military Surgeons, August, 1904).

APPENDIX, RELATION OF, TO PELVIC DISEASES.

Only a little over 50 per cent. of appendices removed during the course of operations for pelvic lesions will be found microscopically to be normal. The remainder will show forms of acute and chronic inflammation or the result of former inflammation.

The average length of the appendix is between 8 and 9 centimeters. In 107 cases the average length was 8.25 centimeters. The maximum length of the appendix is found between the ages of 20 and 30 years. After this period the average length of the appendix is less. While this diminution probably is in part due to normal atrophy, in a certain proportion of cases it is influenced by inflammatory changes.

Menstrual pain may be due to or enhanced by the presence of an inflamed appendix. The congestion incident to menstruation increases the inflammation and gives rise to attacks of appendiceal colic.

It is exceedingly difficult to differentiate between pain due to pelvic lesions and pain due to chronic appendicitis. In the present series of cases a much larger proportion of patients whose appendices were abnormal gave histories of having or having had this pain of doubtful origin.

The appendix is adherent twice as frequently in those cases where microscopical examination shows past or present disease. A certain proportion of adherent appendices are, however, perfectly normal microscopically. Mere shape of the appendix cannot serve as an index of its normality or disease. Appendices may be club-shaped, constricted, or bent upon themselves and yet be perfectly normal microscopically.

The appendix is the seat of fæcal concretions in at least 8 per cent. of all cases. Their existence does not denote that the appendix is diseased.

Nearly 50 per cent. of patients with chronic disease of the appendages show accompanying disease of the appendix. This inflammation may be the result of the direct contact of the appendix with diseased adnexa or infection may travel from the latter to the appendix through the lymphatics connecting the two. In chronic disease of the appendages adhesions of the accompanying appendices are present in nearly 50 per cent. of the cases, where microscopical examination shows the latter to be diseased. In a certain proportion of cases, however, although the appendix may be adherent, it is perfectly normal. In chronic disease of the appendages the appendix, which is club-shaped, constricted, or contains fæcal concretions, is not necessarily diseased.

In 50 per cent. of patients with uterine fibromata there is accompanying disease of the appendix. In 70.9 per cent. of patients with ovarian cystomata the accompanying appendices are diseased.

The appendix is not infrequently adherent to an ovarian cyst and may even infect the latter.

The ordinary median abdominal incision in the class of cases under consideration amply suffices for the removal of the appendix. Such removal should neither increase the mortality nor prolong the convalescence.

Since it is impossible for the surgeon, by gross appearances alone, to determine when an appendix is diseased, and since nearly 50 per cent. of appendices where the abdomen is opened for other purposes are found diseased, it is the surgeon's duty in the absence of contraindications to remove the appendix in every such case. Otherwise diseased appendices will be left behind, which may prove a subsequent source of suffering to the patient.

Systematic examination of series of removed appendices show the occasional presence of primary carcinoma in such an early stage that it could not have been detected by inspection at the time of operation. Removal at this early stage means probably a nonrecurrence and the saving of a life. Even were carcinoma of the appendix not commoner than once out of 200 abdominal sections it would still be an argument for the removal of the appendix in every case where the abdomen is opened for other purposes. Reuben Peterson (American Journal of Obstetrics, July, 1904).

BACTERIURIA.

Bacteriuria is evidently not "a simple urinary infection without parietal lesion." The theory that bacteriuria is but a symptom of catarrh in certain parts of the urinary tract is, on the other hand, fully in accord with the observed facts. Thus bacteriuria is a symptom, not a disease. Yet it is the chief, the only striking, feature of certain diseases, notably certain varieties of catarrhal pyelitis. Such are typhoid pyelitis, puerperal pyelitis, and acid retention pyelitis. Any of these may become suppurative. It would further appear that cystitis never causes bacteriuria. Prostatitis and spermatocystitis exceptionally cause bacteriuria. E. L. Keyes, Jr. (New York Medical Journal and Philadelphia Medical Journal, August 27, 1904).

BLOOD, COAGULATION TIME OF THE.

The writers draw the following conclusions from observations in connection with the coagulation time of the blood: The Brodie-Russel is more reliable than the Wright instrument. The average coagulation time is between three and six minutes. The proof of a delayed coagulation must be based upon several observations. The coagulation time is not affected by the ordinary changes in room temperature. Blood obtained simultaneously from different points on the surface of the body shows no marked variation in the coagulation time. A delayed coagulation is not constantly associated with jaundice due either to benign or to malignant obstruction. F. T. Murphy and A. H. Gould (Boston Medical and Surgical Journal, July 14, 1904).

BLOOD, SUGAR-PRODUCING POWER OF THE.

Vigliani (Gazzetta degli Ospedali e delle Cliniche, May 22, 1904) concludes from a series of experiments that the blood possesses an intrinsic diastatic power, which is shown by the fact that when phloridzin is injected into the circulation the amount of sugar is increased to a larger degree than is warranted by the amount of the glucoside injected. It

is very probable that the injection of phloridzin increases the sugar-producing power of the blood. Similar observations were made by the author in phosphorus poisons, in which there was an increase of the glucose contained in the blood, and in which the action of the hæmodiastatic ferment was more energetic than normal. In summing up the author says that when metabolism is altered, as, for example, by the injection of phloridzin or the administration of phosphorus, an increase in the sugar-producing power of the blood-serum is obtained. This increase varies in different individuals, but was always observed in these experiments. (New York Medical Journal and Philadelphia Medical Journal, August 20, 1904.)

CARCINOMA, CHRONIC IRRITATION IN THE ETIOLOGY OF.

It is not necessary to presuppose the existence of embryonic inclusions at the location of the tumor-formation, but the carcinoma may develop from the tissues normally present.

Chronic irritation, mechanical or chemical, produces a cellular proliferation, sometimes giving rise to a papilloma or adenoma, and sometimes, when the resistance of the opposing tissues is slight or the irritation longer continued, to a typical carcinoma.

Parasites, if present in carcinomatous tissues, have no more etiological significance than any other form of chronic irritation, and hence there are no specific organisms of carcinoma. H. S. Olney (Detroit Medical Journal, July, 1904).

CHOLERA INFANTUM, TREATMENT OF.

Roeder (Therapie der Gegenwart, vol. xiv, No. 6, 1904) describes the method of treatment adopted by Baginsky, who insists that this disease requires ceaseless observation of the clinical manifestations, sensorium, turgor, attitude of the body, behavior of the pulse and of diuresis, and adaptation of the therapeutics to the varying conditions, with a certain executive skill in the measures deemed necessary and their systematic application. The great and immediate danger is from the loss of fluids, felt specially in the functionating of the organs which are thus stranded, as it were, from loss of their accustomed medium. The body may lose from one-tenth to one-fifth of its weight in the diarrhœa of a single day in this disease. The symptoms observed resemble in many respects those of uræmia, and are due to the lack of fluids and the consequent retention of toxins in the body. The diarrhœa carries away much of the causal agents, and this may be supplemented by calomel and castor-oil. A mustard bath is a sovereign means of stimulating the vasomotors and heart from the periphery. The infant is kept in the bath from five to eight minutes, with the water colored a turbid, yellowish green by a couple of handfuls of mustard. It is well to give the mustard bath in the morning instead of the ordinary bath, and repeat it during the day if needed, carefully protecting against drafts to ward off otitis media. Camphor should be injected before the bath and again every three hours in urgent cases until danger of collapse is past. Injections of artificial serum restore the loss of fluid, and a hypotonic saline solution should be preferred, as it is more rapidly absorbed and as salt is more or less contra-indicated by the nephritis generally present—$^1/_2$ teaspoonful of salt to a quart of boiled water. The amount should be about from 20 to 30 cubic centimeters per kilo, and the injection repeated, if necessary, twice a day.

It is supplemented by mineral waters. The practitioner must not be misled by the apparent mildness of the attack and postpone these measures until the opportune moment has passed. When vomiting continues, notwithstanding abstention from food, lavage of the stomach is called for, and in many cases after lavage from 60 to 100 cubic centimeters of the above salt solution is poured into the stomach and left to quiet the thirst, or it can be injected into the rectum. Albumin seems to be the most harmful food in cholera infantum; its nourishing value is far outweighed by the danger from its putrefaction. Strict asepsis should be insured, both for the infant and for the nurse, in every measure undertaken. (Journal of the American Medical Association, July 30, 1904.)

COLITIS, CHRONIC: TREATMENT.

The attack of pain which precedes the passage of mucus should be treated by a hypodermic of morphine and atropine, and thorough evacuation of the bowels promoted by large doses of castor-oil by the mouth and high enemas of oils or of alkaline solutions. A carefully selected diet to suit the individual case should be ordered, after a chemical examination of the stomach contents has been made. Digestion should be assisted and fermentation allayed. The bowels should be kept open by means of oils by the mouth, which have the double office of laxative and lubricant. Suitable support should be applied to overcome any ptosis of the abdominal organs. Local treatment should be administered by means of astringent enemas and oils, and topical application of the same when necessary. The patient should get sufficient rest in the recumbent position, and when practical a change to the air of the mountains or seashore. Jesse Shoup (American Medicine, August 27, 1904).

CONSTIPATION, RECTAL, IN WOMEN.

It is generally recognized that women for various reasons are most subject to constipation; nevertheless rectal constipation, from which a large number suffer, has received at the hands of the profession, scant consideration.

Rectal constipation may be, but is rarely, due to a nervous condition,—*i.e.*, nervous rectum. While it may occur as the result of inflammatory conditions, such as hæmorrhoids, fistula, and fissures, which are common to men and women alike, in very many cases it is occasioned because of the peculiar anatomical construction of the parts, and is mechanical in its origin. Anteversions; retrodisplacements; neoplasms, especially fibroids; and periuterine inflammations obstruct the downward passage of the fæces. Conversely, owing to the close juxtaposition of the rectum and the genital organs of women, a loaded rectum in its turn may occasion ovarian and uterine displacements and disorders.

A form of rectal constipation which heretofore has received but little recognition is that which occasions and is the result of the pulling down of the recto-vaginal septum, thereby forming a pouch, constantly increasing in size, changing the direction of the intra-abdominal rectal pressure to that of the vaginal, which is at right angles to it, and making it difficult for the rectal sphincters to relax so as to void the contents of the bowel. The result is not only to render defecation difficult, but incomplete. The retention of fæcal matter causes rectal irritation and auto-intoxication. This condition occurs not only in women who have borne children, but in nullipara and

the unmarried, although not so frequently in the latter.

As regards the treatment, cathartics may be useful in those cases in which the obstruction is due to inflamed and displaced organs or neoplasms, which prevent the descent of the contents of the bowel and in which the hardened masses of the fæces press and inflame the genital organs, but would be useless in those cases in which there has been a displacement of the recto-vaginal wall. In such cases, glycerin or gluten suppositories, or injections of small amounts of olive-oil, glycerin, or soothing fluids, may be employed. The use of daily enemata, as ordinarily practiced, is to be reprehended from every point of view. The use of bougies or dilators may prove beneficial. For constipation of purely rectal origin, massage, electricity, and measures designed to improve peristaltic action are of no avail. G. P. Murray (Medical Record, August 6, 1904).

DIABETES MELLITUS, ETIOLOGY OF.

Experimentally in animals glycosuria can be produced in a great variety of ways, viz.: injuries to the central or peripheral nervous system, to the sympathetic system, and by the administration of various poisons. These are transient states soon to disappear.

True diabetes mellitus can be produced experimentally and invariably by complete destruction of the pancreas.

The specific constituent of the pancreas which controls carbohydrate metabolism is not the secreting parenchyma, but the groups of cells known as the interacinar, or islands of Langerhans, which are independent of the secreting parenchyma, having no connection with the excretory ducts.

From 50 to 60 per cent. of all cases of diabetes show destruction or marked changes in the interacinar islands, accompanying especially interacinar pancreatitis, hepatic cirrhosis, hæmochromatosis; also especially prone are these islands to hyaline degeneration, often unaccompanied by any marked changes in the secreting parenchyma.

For the remainder of the cases of diabetes, those which show no pancreatic change, no adequate explanation of their etiology can at present be offered. G. F. Zinninger (Cincinnati Lancet-Clinic, August 13, 1904).

DIARRHŒA, ACID, OF ADULTS, PEROXIDE OF MAGNESIUM IN THE TREATMENT OF.

Acid diarrhœas seem to the authors to be the only type that indicate treatment by means of peroxide of magnesium. Peroxide of magnesium is decomposed only in an acid medium. In the stomach, hydrochloric acid or the fermentation acids decompose the peroxide into chloride of magnesia and hydrogen peroxide, and the latter is finally separated into water and oxygen. The drug is administered in the form of keratinized pills so that the specific action of the drug may play its rôle in the intestines. The fæces in the normal state and under the influence of a mixed diet are alkaline or neutral, but they become acid under the influence of a considerable gastric acidity, which the secretions of the intestinal glands of the liver and of the pancreas are unable to offset. It is in such cases that the peroxide of magnesium has given the best results. There is in this drug an antiseptic as well as antidiarrhœal power, most important when the origin of this diarrhœa is fermentation. It is only when the contents of the intestine are acid that the magnesium peroxide decomposes and sets free

its oxygen. Betherand and Rene Galtier (Bulletin Général de Thérapeutique, June 15, 1904).

DIASTOLIC MURMUR OF HIGH TENSION IN THE PULMONARY ARTERY.

By reason of the presence of the diastolic murmur, care is needed lest the diagnosis be made of double mitral disease combined with aortic regurgitation, instead of double mitral disease only.

If the functional murmur of high tension in the pulmonary artery is heard, and a presystolic murmur is heard at the apex, there is a risk of describing the case as one of aortic regurgitation associated with Flint's murmur heard at the apex.

If the patient be examined in the erect posture, the murmur of high pulmonary tension may alone be heard and be translated as an indication of aortic regurgitation. Recumbency will, however, change the whole picture and reveal the presence of an obstructive or of a double mitral murmur.

The murmur of functional pulmonary regurgitation heard at the xiphisternum may be mistaken for an exocardial sound, and is notoriously changeable, being present at one time and absent at another. This has led, in one case at least, to the erroneous diagnosis of pericarditis.

In cases of mitral stenosis it is said that the diastolic murmur is frequently late diastolic or presystolic when auscultation is practiced over the apex, and that it changes to an early diastolic murmur when the stethoscope is placed internally to the apex beat; this change is probably due to the loss of the audibility of the presystolic murmur, which is strictly limited to the apex and to the recognition of the functional pulmonary regurgitant murmur which may be heard internal to the apex beat even as above stated at the xiphisternum. H. Batty Shaw (Clinical Journal, July 27, 1904).

DYSMENORRHŒA.

Dysmenorrhœa is not a diagnosis, not more so than is jaundice, and should be looked upon as a local expression of a constitutional or pelvic disorder. Dysmenorrhœa is seemingly on the increase and is developed in proportion to the strenuousness of the human existence.

The period of puberty should claim the attention of the physician as a promising field for preventive gynæcology, as it is at this impressionable period that the foundation for future suffering is laid. It is the duty of medical men to urge the necessity of properly caring for the physical side of the schoolgirl, not permitting the mental faculties to be trained at the expense of the physical side.

While mindful of the great value of surgery in the treatment of certain well-defined pathological conditions in the pelvis, still there is a growing tendency to abuse its application in reference to dysmenorrhœa, and, as a whole, the results obtained through its intervention are nothing of which we can be proud.

A plea is made for a more careful study in analysis of these cases with especial reference to the etiological facts, and too with especial reference to the value of the application of the general hygienic laws, electricity, massage, exercise, etc., in contradistinction to the reckless and loose surgical measures resorted to in their treatment. Dilatation and curetting are of value in well-defined cases, but as a routine procedure are woefully abused.

In the light of recent experience obstructive dysmenorrhœa is rare, and the mechanical side of dysmenorrhœa is not looked upon as an etiological factor with

the same degree of frequency now as in the past.

There is a close dual relationship existing between the generative organs and the general health, and in the treatment of dysmenorrhœa it should be constantly remembered. S. M. D. Clark (New Orleans Medical and Surgical Journal, August, 1904).

EXOPHTHALMOS, DIFFERENTIAL DIAGNOSIS OF.

The signs which principally distinguish a meningocele from the dermoid cysts are as follows: A meningocele is immovably attached to the bone. Not infrequently the opening in the bone through which the meningocele communicates with the cranial cavity (hernial orifice) may be felt with the finger. A tumor of this kind shows the pulsatory and respiratory oscillations which are communicated to it from the brain.

A meningocele can be diminished in size by pressure with the fingers, since their fluid contents are in part pushed back into the cranial cavity. At the same time, symptoms of increased cerebral pressure, like vertigo, nausea, deviation of the eyes, convulsions, etc., may make their appearance.

In order to be perfectly certain, an exploratory puncture of the cysts must be made. In doing this rigid antiseptic precautions must be observed, so as not to excite inflammation of the cysts and consequent meningitis. The diagnosis becomes more difficult or is even impossible, when the communication between the meningocele and the cranial cavity (the subdural space) is obliterated: but then, in this case, removal of the tumor is not associated with danger of any sort. J. E. Willette (Pennsylvania Medical Journal, June, 1904).

EYE SYMPTOMS IN GENERAL DISEASE.

The relation between eye diseases and certain general diseases is so intimate that not infrequently the eye symptoms are the first indication of the general malady, and the physician who does not appreciate the significance of the former will lose the opportunity of combating the general disease at a time when treatment will be of most benefit. The ophthalmologist, on the other hand, should recognize that eye symptoms are secondary to and caused by general disease, otherwise he may fail to benefit his patient by restricting himself to local medication. The more experienced the ophthalmologist is in general medicine, the more expert and successful he will be in his special work. By watching the movements of the eyelids symptoms diagnostic of exophthalmic goiter may sometimes be discovered. In the conjunctiva discolorations should be looked for, such as are produced in jaundice, and the peculiar tint found in anæmia and chlorosis. Inflammation of the subconjunctival tissue and superficial layers of the sclera may indicate rheumatism or syphilis. The spontaneous rupture of conjunctival vessels suggest the possibility of similar accidents occurring in the brain. Ulcers of the conjunctiva are suggestive of tuberculosis. Phlyctenular keratitis suggests improper nourishment, and in children adenoids and inflammation of the naso-pharynx. Interstitial keratitis is almost diagnostic of inherited syphilis. In the iris there may be manifestations of rheumatism, syphilis, gonorrhœa, tubercle, and sarcoma. A careful study of the reactions of the pupil will afford much assistance in determining many lesions in the nervous system. A haziness of the retina due to œdema and inflammatory exudation, congestion of the optic disc with blurred outlines,

tortuosity and enlargement of the retinal vessels, with or without hæmorrhages, is the picture of retinitis and generally suggestive of nephritis or syphilis. The choked disc picture is diagnostic of brain tumor. It is evident, therefore, that careful examination of the eye and the accessory structures is of vast importance in many general diseases, and should never be omitted. C. S. Merrill (Albany Medical Annals, July, 1904).

FRACTURE, CAUSES OF NONUNION.

The authors publish the results of some experiments made with the chief object of determining the part played by mobility of the fragments of a broken bone in failure of osseous union and the formation of a pseudarthrosis. Failure of union, the authors conclude, is not due to mobility alone. The idea that mobility excited by frequent displacement of the fragments inevitably results in nonconsolidation of a fracture is held to be an erroneous one. Union is thus slightly retarded, but it is established with much vigor and the formation of an excess of callus. This conclusion is one of practical importance in its bearing on objections to the treatment of fracture by early movement of the injured limb and frequent massage. Muscular interposition, long recognized as an actual and frequent cause of nonunion of fracture, is held to be more common than is generally supposed. In some instances overriding of fragments seems to have been the only, or at least the predominant, cause of nonunion. Rarefying osteitis and fatty rarefaction of bone, either singly or in association with other causes, are occasional factors in the production of a pseudarthrosis. Very little is known as to the influence of any general morbid condition on failure of union of a fractured bone. According to le Dentu, the only constitutional condition that can be accepted as a cause of such failure is syphilis, especially in its early secondary stage. To these causes others may be added in which complex elements exist. Examples of these occasional and complicated causes have recently been collected and recorded by Roy. In some of these cases a detached fragment of bone seemed to play the principal or, at least an important, part. A very abundant effusion of blood at the seat of fracture may prevent union. In cases of pseudarthrosis, following a compound fracture, and particularly one in which suppuration has occurred, the causation is very complicated, as in such forms of injury often found associated: overriding of fragments, interposition of muscle, and the presence of dead bone. Cornil and Coudray (Revue de Chirurgie, No. 7, 1904).

GASOLENE VAPORS, INHALATION OF.

Gasolene (or petroleum ether) when inhaled has a comparatively slight anæsthetic action. The anæsthesia is, however, very dangerous, since the substance also produces convulsions, weakening of the heart, vasomotor depression, and paralysis of respiration. The kidneys are also irritated. The effects are produced very promptly, and recovery under artificial respiration is also prompt. The cause of the convulsions is not known. They do not occur in frogs. Torald Sollmann (American Journal of the Medical Sciences, September, 1904).

GASTRIC AND INTESTINAL OPERATIONS, DIET FOLLOWING.

The cause of death after gastric and intestinal operations, according to F. Ehrlich (Münchener medicinische Wochenschrift, vol. ii, No. 14, 1904), is not

so much shock as exhaustion, brought on by starvation before and after the operation. To prevent this he feeds his patients immediately after the ether nausea has worn off, and he feeds them well. Of 12 gastro-intestinal operations performed last year only 3 were lost, and they died of peritonitis, establishment of a vicious circle, and angina Ludovici, but not of exhaustion. The recoveries included 3 total gastric resections for gastric carcinoma; 5 gastro-enterostomies for inoperable gastric cancer, pyloric stenosis, and ulcer of the stomach; and 1 intestinal resection for incarcerated gangrenous hernia. The patients are fed by a routine method in the following manner: So soon as the nausea from the anæsthetic has worn off, the patient gets tea, red wine, or gruel; on the day after the operation he is given sweetbread in bouillon, even if it nauseates him; if the nausea is persistent his stomach is washed. On the second day, finely chopped, cooked squab, chicken, or veal is added; on the third day, beef, potato *purée*, and cakes; on the fourth, chopped ham raw, soft zwieback, and soft-boiled eggs: on the fifth day, white bread and spinach. After the seventh day the meat is not chopped, and then the patients return gradually to normal diet. The bowels are regulated with oil enemas. The shock of the operation does not usually last beyond the third day. (American Medicine, August 27, 1904.)

GONORRHŒA AND PROSTATIC HYPERTROPHY.

Among 433 cases suffering from prostatic hypertrophy, only 18 showed clinical evidence of previous prostatitis. These 18 presented no marked difference in point of size of the prostate, or of beginning of the disease to differentiate them from the remaining 415. Comparison of these 18 cases with 54 cases of chronic prostatitis without hypertrophy showed that the proportion of such cases suffering from prostatic hypertrophy varied little from the normal. Prostatitis lasting more than ten years probably tends to produce prostatic atrophy rather than prostatic hypertrophy. Therefore, if it is true that hypertrophy of the prostate is pathologically referable to inflammation, the clinical data suggest that this inflammation is either early gonorrhœa of relatively brief duration or some obscure sclerotic process associated with advancing years. The late date at which prostatic hypertrophy begins and its infrequency, compared with that of early gonorrhœa, make it seem clinically most improbable that early gonorrhœa is the cause. E. L. Keyes, Jr. (Journal of the American Medical Association, July 16, 1904).

HAY FEVER, QUININE IN.

The writer's treatment for hay fever consists of the employment of a saturated solution of quinine sulphate, in sterilized water, as a nasal spray, and the application to the mucous membrane of the nares of an ointment consisting of quinine and petrolatum in the proportion of 30 grains to the ounce, the applications being made every four or six hours. H. D. Fulton (Journal of the American Medical Association, July 30, 1904).

HAY FEVER, TREATMENT.

The writer discusses the treatment of hay fever under three separate heads: (1) constitutional; (2) local; (3) treatment of the exacerbation. For building up the nervous system, he advocates the daily morning cold plunge taken immediately on rising, followed

by vigorous rubbing with a coarse towel. The use of the bath should be commenced several weeks before the usual time of the hay fever to make its appearance. The mode of life, diet, and exercise should be regulated. Suitable clothing and shoes should be worn to prevent taking cold. The sleeping room should be well ventilated. Nerve-tonics, such as strychnine, arsenic, and phosphorus are indicated. A thorough examination should be made of the nose and nasopharynx of every patient suffering from hay fever, with a view to correcting any existing chronic inflammatory condition or obstructive lesion. It is advisable to begin the treatment of local conditions in the spring, or at least several weeks before the time when the symptoms of hay fever usually make their appearance. This plan of treatment may need to be renewed at the same period for two or three years before marked improvement in the severe cases can be expected. In the treatment of the exacerbation it is well to give due attention to the possibility of uric acid being a factor in the causation of the malady. The internal administration of the saccharated extract of the dried suprarenal gland and the active principle of the gland in the form of a nasal spray are very efficient. By some suprarenal extract is considered a specific. It is given in 5-grain doses every two hours, day and night, until dizziness or palpitation is observed, or until the vasomotor paralysis in the nasal mucous membrane is controlled. Then the intervals between doses are increased. Solution of adrenalin is best used as a spray in the proportion of 1 to 5000 in normal salt solution. Its use may be preceded by a mild alkaline solution and followed by a bland, oily spray. The quantity and irritating quality of the secretion of the nasal mucous membrane is diminished by treatment of the uric acid diathesis, treatment of the intranasal pathological conditions, and the use of the suprarenal gland. Complicating conditions such as asthmatic paroxysms and bronchitis should receive proper treatment. The use of camphor, the cold spinal douche, the icebag applied to the back of the neck and the upper portion of the spine, and change of climate are mentioned as adjuvants in the treatment of hay fever. The use of opium, alcoholic stimulants, and cocaine should be avoided. R. W. Parsons (Medical Record, July 16, 1904).

IMMUNITY, NATURAL, THE INFLUENCE OF ALCOHOL, ETHER, AND CHLOROFORM ON.

That alcohol, ether, and chloroform have a decidedly detrimental influence in the natural defenses against infection has been proved experimentally by the writer, who also found that this lowering or suspension of the resisting power of the animal is not due to any apparent organic lesions. The narcotics appear to affect directly the substance or substances which inhibit the growth and toxic action of bacteria in the normal animal, and these substances are either the leucocytes themselves or something derived from them, or both. Snee has shown in his work that alcohol and ether suspend also conferred immunity against a specific microbe. The period of detrimental action of the narcotic depends largely on the amount administered, the depth of narcosis, and the rapidity of its elimination from the system. Some of the narcotized animals that were employed in other experiments with infectious material twenty-four hours after narcotization fared as well as the new rabbits. G. Rubin (Journal of Infectious Diseases, May 30, 1904).

IODINE AND MERCURY IN LOCAL INFECTIONS.

The writer gives Koch as authority for the statement that mercuric iodide in the dilution of 1 part to 50,000 parts of water is capable of killing most germs. He further asserts that if calomel is given internally and iodine is applied locally, iodide of mercury will be produced at the site of the local application. Clinically, this method of local anti-sepsis has produced brilliant results in the author's practice. Two chief methods of exhibiting the drugs are advised: 1. For the treatment of mucous membranes: *(a)* Calomel internally. *(b)* With the aid of an atomizer the affected surface should be sprayed as often as desirable with the following solution: Glycerin and water, equal parts, 1 ounce; tincture of iodine, 1 drachm; a little carbolic acid and belladonna as local sedatives. Even in so serious a disease as diphtheria this method of treatment is very efficient. 2. For the treatment of inflammations under the skin (rheumatic joints, boils, carbuncles, mammary inflammations, etc.): *(a)* Calomel internally. *(b)* Lint soaked in various preparations, containing tincture of iodine as their chief ingredient, should be applied locally to the seat of inflammation. The lint is covered with rubber tissue or other protective. Brilliant results from this method of treatment may be confidently expected. A. Stabler (Medical News, June 25, 1904).

KIDNEY, SECRETION OF ACID BY THE.

A study of the mechanism by virtue of which the kidney excretes an acid urine from the alkaline blood was made by the author. It was found that the reaction of the urine varies within strict limits in diuresis; it is never alkaline to phenolphthalein nor acid to methyl-orange, and thus corresponds approximately to the interval in reaction between monosodium and disodium phosphate. The intravenous injection of most saline diuretics is followed by a marked fall in the percentage acidity, partly because the phosphates are present in only small amount, and partly because the absorption in the tubules is deficient. Phosphates injected intravenously give an acid reaction to the urine which is especially marked when the diuresis is partially prevented by increasing the absorption of the tubules. This is explained by the hydrolytic dissociation of the phosphates of the glomerular fluid, which permits of the absorption of the cation along with hydroxyl or carbonate anions; these are capable of permeating the epithelium, while the phosphate anion fails to penetrate it so freely and remains in the tubules along with the hydrogen cations replacing the original ones. The essential factors in the secretion of acid urine are (1) the presence of salts in the glomerular fluid which are capable of extensive hydrolysis and of which the cations can permeate the epithelium, while the anion fails to do so in equal measure, and (2) insufficient absorption in the renal tubules. The phosphates alone of the salts examined fulfill these conditions completely. The carbonates fail to do so because the anion is absorbed, and the borates satisfy the condition only in relation to phenolphthalein, since the anion is too weak to compete with the stronger anions of litmus. A. R. Cushny (Journal of Physiology, June 30, 1904).

KIDNEYS, CONGENITAL CYSTIC DISEASE OF THE.

The second stage of congenital cystic disease of the kidneys lasts for an indefinite period, perhaps for six or eight

years. During this time the kidney tumors may be found if searched for. Dull aching and sometimes paroxysmal pains are experienced, especially in the abdomen and back, both during exercise and rest. Pain is often augmented by palpation, pressure, micturition, and during exercise if the kidneys are movable. Tenderness is usually present.

As regards the urinary symptoms, there is dysuria, sometimes polyuria, and almost always some degree of hæmaturia, varying from a few corpuscles to a large amount of blood. A large number of leucocytes and even pyuria may be present. Casts are absent. Urea is reduced and albumin present. Symptoms of mild or severe dyspepsia are often felt. Headache and constipation are common. Cardiac enlargement occurs late in the second stage in about 40 per cent. of cases, and arteriosclerosis generally accompanies it. F. Victor Milward (Birmingham Medical Review, August, 1904).

LARYNGEAL TUBERCULOSIS.

Local treatment is always beneficial, even if it only relieves the most distressing symptoms,—*i.e.*, pain.

The prognosis depends more upon the general systemic condition of the patient than upon the throat lesion, it naturally following that, the more severe the throat lesion, the greater the degree of constitutional weakness. If a case of laryngeal tuberculosis is seen at an early stage of its development, the prognosis is good provided the concomitant lung disease is responding to treatment. The best results are obtained when the tuberculous deposit in the larynx is localized. R. H. Skillern (Pennsylvania Medical Journal, August, 1904).

LEUKÆMIA, MYELOGENOUS.

The mononuclear leucocyte (larger than the large lymphocyte, from which it is further distinguished by having "an excentrically situated, pale, irregularly spheroid or ovoid nucleus, and a relatively large amount of slightly basophilic nongranular protoplasm") is the mother-cell, ordinarily capable of further differentiation into either the ordinary basophilic cell or into a neutrophilic myelocyte.

The two forms of leukæmia, lymphatic and myelogenous, are closely associated and probably forms or stages of the same disease.

Lymphocytes are formed in the lymphoid tissue of the bone-marrow, and not exclusively in the lymph-glands, as formerly supposed.

Myelocytes are formed in the bone-marrow, and are the parent-cells of the polymorphonuclear neutrophiles.

In myelogenous leukæmia myelocytes are cast into the blood circulation in all probability because of increased activity of the myeloid tissue of the marrow, which is the only tissue primarily affected in this disease. G. H. Evans (American Medicine, August 13, 1904).

LIVER, RELATION OF THE ISLANDS OF LANGERHANS TO DISEASES OF THE.

Diseases of the liver are generally accompanied by an enlargement of the islands of Langerhans, which is considered a true compensatory hypertrophy. The fact that the liver and the islands of Langerhans have been shown to possess properties which aid in governing the carbohydrate metabolism suggests that it is the limitation of this function in the liver which is being compensated by the enlargement of the islands of Langerhans.

Two theories, at least, concerning the *modus operandi* of this phenomenon are worthy of consideration. One, based on Lépine's theory, assumes the elaboration of the glycolytic ferment in the islands of Langerhans, which, entering the blood, causes the oxidation of any sugar in excess of the normal amount, and that with an increase of the sugar in the blood resulting from hepatic disease an additional responsibility is placed upon the islands of Langerhans in the elaboration of this ferment, in order that a normal sugar balance may be established. These structures, if healthy, in response to the additional demands placed upon them, undergo hypertrophy. Another theory, suggested by Herter and Wakeman's experiments with adrenalin chloride and similar substances, is that the secretion of the islands of Langerhans possesses an inhibitory influence upon the liver cells in their property of converting glycogen into sugar, and that with a decreased liver activity an additional functional activity of these islands is stimulated, and they, in consequence, become hypertrophied.

It is probable that diseases of the liver occur prior to cirrhotic changes in the pancreas, as shown by certain cases in which the islands of Langerhans are greatly enlarged, but otherwise unaltered, though surrounded by dense bands of fibrous tissue.

It is probable that an increase in the number of islands of Langerhans occurs through a transformation of the acini of the pancreas into these structures, as is seen in a certain number of cases in which the fibrous tissue of the pancreas is not increased, though an unusual abundance of interacinous cell groups is present.

Severe involvement of the islands of Langerhans in a hyaline degenerative process may occur without the usual resultant diabetes. This is explained by the fact that, in the one case presented, the unaffected islands have undergone an immense hypertrophy, thus fully compensating for the lost or limited function of the affected islands.

The property the healthy islands of Langerhans possess of undergoing a compensatory hypertrophy explains, in some cases of diabetes, the lessening and even the final disappearance of the sugar in the urine. This property of the healthy interacinous cell groups of the pancreas also explains the rationale of the treatment in certain mild forms of diabetes by restriction of a carbohydrate diet. The nonoccurrence of sugar after return to general diet may be taken as evidence that a sufficient degree of hypertrophy has occurred in the healthy islands of Langerhans. J. C. Ohlmacher (American Journal of the Medical Sciences, August, 1904).

MALARIA, INFLUENCE OF DAYLIGHT ON PROGRESS OF.

The special effect of quinine in malaria can hardly be explained as a direct outcome of its toxicity with regard to plasmodiæ, although this undoubtedly is very considerable, and, if an explanation of this effect is looked for, a peculiarity so distinct as the power to make micro-organisms sensitive in relation to light must not be left out of consideration.

Quinine preparations have decided sensitizing qualities. Ullmann's investigations show, for instance, that paramæciæ, which are placed in solutions of quinine of 1 to 20,000, first die after about five hours when standing in the dark, while they are killed in the course of eight minutes if placed in sunlight,

under conditions which generally have no baneful effects upon paramæciæ.

According to Jacobson's and Dreyer's experiments, light, even after having passed through a layer of animal tissue, can exercise its microbicidal effect upon the sensitized organs. The depth at which it may be possible to obtain an effect will, of course, among other things, depend upon the intensity of the light.

The tissues of the human body are pellucid, and, even if only a comparatively small portion of the surface of the body is exposed to light, the blood, and with it the plasmodiæ, will, on account of its continuous circulation, all the same be affected by the light.

The writer states that if the correctness of his views should be confirmed by clinical experiments, they indicate the advisability of treating malarial patients with sun-baths or electric-light baths, in addition to quinine. Gunni Busck (American Journal of the Medical Sciences, July, 1904).

NEUROSES, RADIANT LIGHT BATH IN THE TREATMENT OF.

The radiant light penetrating to the deeper tissues of the body is turned into heat or transformed into nerve energy more positively than that of heat from hot air. The clinical effects of the bath prove its power as the eliminating agent and a corrector of neurotic, nutrient, and capillary disturbance. In neurotic diseases its action in conjunction with other measures is far superior to any of these means when used alone. The evidence so far points unmistakably to the possibilities that when used in connection with other electrotherapeutic measures it may come into general use and constitute a real advance in the progress of neurological therapeutics. T. D. Crothers (New York Medical Journal and Philadelphia Medical Journal, July 23, 1904).

NEW GROWTHS, MALIGNANT, NATURE OF.

The various so-called parasites fail to make good in fulfilling the requirements of an infecting agent. The vast majority of competent pathologists are of the belief that the so-called parasites are changed or degenerated cells, not yet thoroughly classified.

Contaminations could not be excluded in the few cases that showed any growth out of the vast number of cultures taken on every known media.

The tumors produced by inoculation of blastomycetes show them to be only granulomata. Blastomycetes can be cultivated from the air. Hence, contamination is always possible. In short, it is true that no one has to the present been able to grow or demonstrate parasites in malignant growths.

The facts and arguments are so overwhelmingly on the side of embryonic cell theory that for the time being at least it shall have to be believed that malignancy is due to an abnormal play of forces within the body, of which as yet little is known.

A benign tumor is an abnormal deposit or growth of normal tissue, at least for a time: a supernumerary toe is normal tissue growing in an abnormal position. Why is not a malignant tumor an abnormal growth of abnormal tissue? A logical conclusion would be that it is.

Time will show a reaction in the present movement of parasitism and many of its strongest advocates will refute their theories and admit that their conclusions were reached without sufficient investigation. C. H. Richardson (New York Medical Journal and Philadelphia Medical Journal, August 27, 1904).

OSTEOMALACIA, PATHOGENY OF.

Osteomalacia may and does exist for years in pelvic and other bones before the symptoms can possibly be recognized by the physician or surgeon, and can be studied earliest in the alveolar process. The alveolar process is the most transitory structure in the body. It develops twice, and is absorbed thrice if the second set of teeth are shed. The evolution of the face, whereby the jaws are decreasing in size, with the many complications thereon resultant, renders the jaws and the alveolar process increasingly transitory.

In the evolution from the lowest vertebrates up there has been a continuous succession of teeth (polyphyodont), as found in some selachians; a partial continuous succession, as in some mammals, and a comparatively permanent set of teeth as in man. This shedding of teeth, due to a process called senile absorption, atavistic in type, takes place in everyone to a greater or less extent after 45 years of age. Should man live in a comparatively healthy state long enough he would lose all teeth from this process.

Degenerate children from precocity, due to arrested development at the senile or simian period of intra-uterine life, may show symptoms of this disease in connection with the first set of teeth at from 6 to 10 years of age. A monkey which died of tuberculosis at one year had osteomalacia, which exposed the roots of all the temporary teeth, while three had dropped out.

Constitutional causes like auto-intoxication and drug poisoning are the etiological factors. Even the mildest types of auto-intoxication, due to indigestion, change in climate from hot to cold, and *vice versa,* with corresponding change in food, giving more work to some eliminating organs and less to others, as well as to mild forms of drug poisoning, may be potent in this particular.

The effect of auto-intoxication and drug poisoning is first irritation through blood-streams, often causing endarteritis obliterans. Since the arteries are terminal, irritation readily causes inflammation and halisteresis.

Osteomalacia is as common among wild animals in captivity as in domestic animals. The influence of bacteria as a cause has not been demonstrated by Koch's law. If due to auto-intoxication, the effete matter should be removed from the system.

Osteomalacia or senile atrophy is the basic explanation of interstitial gingivitis, or so-called pyorrhœa alveolaris. The author thinks that the same line of reasoning will hold true of osteomalacia of the bones of other parts of the body. E. S. Talbot (Journal of the American Medical Association, July 23, 1904).

OVARIAN DISEASE, APPENDICITIS AND.

Appendicitis is a frequent complication of inflammatory disease of the adnexa. In most cases it is secondary to adnexal trouble, a long appendix in contact with, or adherent to, the right tube or ovary being infected by extension through its wall, or through the lymphatics.

The inflammation of the appendix is usually of the subacute type. In a small proportion of cases the infection extends from the appendix to an adherent tube or ovary, or cystoma.

The symptoms of the associated conditions are usually determined by the more prominent lesion, but these are referable principally to the diseased adnexa. The diagnosis is made from the history, the location of the pain (above, as well as below, the pelvic brim), and the presence of an induration which can

be traced from the appendicular region downward into the pelvis.

In acute cases, with an extrapelvic mass, the lateral incision is preferable, with subsequent exploration of the pelvis, and vaginal drainage if possible. If the abscess is mainly intrapelvic and easily accessible, vaginal section is indicated. In subacute and recurrent cases a median incision is to be elected.

The appendix should be removed whenever the abdomen is opened for pelvic disease, with the exceptions noted. H. C. Coe (New York Medical Journal and Philadelphia Medical Journal, August 6, 1904).

PREGNANCY, THE BLOOD IN.

A moderate decrease is observed in red blood-corpuscles rather early in pregnancy, remaining subnormal throughout the middle months, to rise again to normal at the termination of pregnancy —not, however, in all cases. There is a low percentage of hæmoglobin, constant throughout the first seven months, rapidly approaching normal as pregnancy draws to a close. A slight absolute leucocytosis exists in every case of pregnancy, but this slight leucocytosis does not support the theory that it is due to any positive chemio-taxis. There is no variation from normal in the different forms of colorless corpuscles, the leucocytosis affecting all forms of white cells alike. The specific gravity is high at the onset of pregnancy, diminishing by progressive steps, to reach its lowest level in the middle months, rising to normal at term. W. L. Thompson (Johns Hopkins Hospital Bulletin, June, 1904).

PRURIGO.

The writer believes that prurigo is more common than is generally believed. The disease is often masked by excoriations from scratching, which, together with the pustules, give rise to a dermatitis readily mistaken for eczema. The disease should not be confounded with the prurigo hiemalis of Duhring, which is a very common affection in the Great Lakes region in the winter. In both diseases, however, there seems to be a diminution in the sebaceous and sudoriferous secretions. Both conditions are of uncertain duration, and may last a lifetime. In both, internal medication seems to have no effect, while in the writer's experience liquid vaselin, to which may be added carbolic acid, is the most universally beneficial application used in the treatment of both forms of the disease. W. T. Corlett (Journal of the American Medical Association, July 30, 1904).

PUS, THE PROTECTIVE ACTION OF.

Binaghi (Riforma Medica, May 4, 1904) has carried out a series of experiments *in vitro* and *in vivo* tending to show the bactericidal action of pus upon certain virulent organisms. The method was to induce the formation of an abscess in rabbits, and then inject cultures of various bacilli (charbon, tetanus, malignant œdema, staphylococcus aureus) into the abscess cavity, and watch the effects. Out of the fifteen rabbits operated upon in this manner, only two died (from charbon), and in them the abscess was small and hard, and the injection got into the surrounding healthy tissue. The control animals all died. Further experiments showed that pus does not confer a true immunity, but only a relative and temporary immunity, for it was quite possible to reinfect the same animals. The protective action of the pus was not owing to hindered absorption of virulent toxin or failure of penetration of the germs into the circulation, for in

the reinfection the same obstacles were present as before. Possibly reinfection occurred because of the saturation of the pre-existent alexins, and failure to produce flesh, owing to impeded leucocytosis. The abscesses were produced by inoculation of pure cultures of staphylococcus aureus and bacillus coli, or by starch powder suspended in sterilized water. (British Medical Journal, August 13, 1904.)

PYOPERICARDITIS.

Purulent pericarditis is quite frequently overlooked in lobar pneumonia and in other pyæmic states. Its presence modifies the pre-existing disease to a considerable extent. In diseases with high temperature the presence of purulent pericarditis depresses the fever range and increases the respiratory and pulse-rate without sufficient clinical evidence of trouble elsewhere than in the pericardium.

It is yet to be proved that the heart, in case effusion is present in the pericardium, is always dislocated backward and upward. It is probable that in some cases the presence of fluid in the pericardium dislocates the heart either to the right or to the left. (This, of course, will occur if previous adhesion between the heart and the pericardium has occurred on either the right or the left side.)

The diagnosis once made, the only treatment should be incision and thorough drainage. (Paracentesis will at times relieve temporary urgent symptoms and should be performed without the slightest fear.) Exploratory puncture can be made with safety, and is essential for diagnostic purpose before operation is undertaken. Such puncture should be made in the fourth or fifth left intercostal space, as close to the sternum as possible, with a fine needle.

Pericardial dilatation does not alter the relations of the pleuræ to the anterior thoracic wall. In the presence of pyopericarditis the overlying pleural space is usually obliterated by extension of the inflammation.

Incision under local anæsthesia is the preferable operation in the majority of cases. Roberts's chondroplastic flap is preferable to an ordinary excision of costal cartilages when incision fails to give adequate drainage. J. A. Scott and Robert G. le Conte (American Journal of the Medical Sciences, September, 1904).

RADIUM EMANATIONS.

The writer describes as emanations of radium a gas which is given off by this substance. This gas differs from all other gases known hitherto by the fact that it communicates radioactivity to bodies with which it may come into contact. It is also noteworthy, because it is unstable, and, when inclosed in a vessel, helium may be found in its place. The author found that radium emanations could communicate radioactivity to living organisms. A mouse kept for one or two hours in a vessel containing radium emanations begins to exhibit radioactivity. Living organisms were, therefore, endowed with the same faculties of secondary radioactivity as non-living objects. The effect of the radium emanations upon the skin was found to be analogous to the action of radium rays. The most intense effect was obtained by means of cotton saturated with radium emanations. The author suggests that pharmacists should prepare such cotton for general use, and that this product might be obtained in large quantities simply by exposing cotton to emanations

from 5 or 10 milligrams of radium. For internal administration, the author suggests sugar saturated with radium emanations, but admits that we are still in the dark as to the therapeutic effects of radium administered internally. Radium emanations are fatal after a certain time to mice, frogs, and other animals, and the indiscriminate use of this gas for inhalations in lung diseases is warned against. Radium emanations destroy the red corpuscles in a test tube of defibrinated blood. They kill the spermatozoöids in an emulsion of the semen of the guinea-pig. They do not, however, affect the ferments of the stomach and of the pancreas to any extent, while they are markedly destructive for the bacteria which are found in the intestinal tract. E. S. London (New York Medical Journal and Philadelphia Medical Journal; from Roussky Vratch, June 12, 1904).

SALT SOLUTION, PHYSIOLOGICAL.

While much attention has been given to the hypodermic use of salt solution in recent years, comparatively little thought has been directed to the composition of the fluid selected. The idea has apparently been that as long as a weak solution of sodium chloride is injected the strength of the solution is a matter of secondary importance. In the majority of hospitals for many years a 0.6 per cent. solution has been aimed at, but in private practice little or no attempt has been made at exactness. This 0.6 per cent. fluid has been called the "physiological" salt solution, though more careful experiment has demonstrated that the amount of sodium chloride in solution in the blood varies between 0.84 and 1.9 per cent. Different clinicians have advocated, in place of the chloride of sodium solution, solutions of alcohol, carbolic acid, sugar, and, indeed, of every base or acid present in the blood. It is here that a lamentable ignorance is shown of the principles involved in hypodermoclysis, for it is not enough that the injection may perhaps do good; we must be certain that it does no harm. In other words, we must not use too dilute a solution, as that will cause the blood-cells to swell and later on to part with their hæmoglobin; or too concentrated, as marked shrinking of the red cells will then occur. Again, it is to be remembered that these changes that might occur in the erythrocytes are not referable to the chemical nature of the solution, nor even to the actual amount of dissolved matter present, but to the comparative osmotic action. As we know that fluids with identical freezing points have the same osmotic pressure, it is comparatively easy to find by actual experiment the amount of sodium chloride it becomes necessary to dissolve in a given quantity of water to obtain a solution with the same osmotic pressure as the blood, and this has been found to be not a 0.60 per cent. solution, but an 0.84 to 0.90 per cent. solution. Similarly it has been found that the latter strength, when taken up by the blood from the subcutaneous tissues, does not cause either a swelling or a shrinking of the red corpuscles,—*i.e.*, it is neither too concentrated nor too dilute.

While many clinicians have been content with simple sodium solutions, further and more careful experiment by Loeb, Howell, and others has shown that the calcium and potassium salts, while not absolutely essential, are valuable in that the calcium acts as a stimulating agent to the heart-muscles, while the potassium helps to a rhythmical contraction, both important considerations in

the very conditions in which hypodermoclysis is indicated. The amount of potassium reckoned as the chloride is very small, ranging according to different authorities from 0.01 to 0.06 per cent., while the calcium salt is a trifle less. Even in these small quantities experiment has shown that they are of benefit, not alone as above stated, but as preventing the earthy salts from being dissolved out of the body cells. Matthews (Annals of Surgery, August, 1904), who has later made a most valuable and timely contribution to the subject, recommends as an emergency solution 138 grains of sodium chloride to the quart of water. Where accuracy is desirable and time permits, a "balanced" solution of 0.9 sodium chloride, 0.03 potassium chloride, 0.02 calcium chloride to 100 parts of water may be used; or, if an alkaline solution is desired, 0.75 sodium chloride, and 0.25 sodium carbonate to 100 parts of water, the former being the solution recommended for routine use. Editorial (Cincinnati Lancet-Clinic, August 13, 1904).

SERUM OF RABBITS TREATED WITH THE ADRENAL GLANDS AND ERYTHROCYTES OF GUINEA-PIGS, STUDY OF THE PROPERTIES OF.

There is something produced in the tissues of rabbits treated with washed guinea-pigs' adrenals which, when injected into guinea-pigs, produces marked symptoms of weakness and depression. The effect of this is, as a rule, transient.

The serum of rabbits treated with repeated injections of extremely small quantities of guinea-pig corpuscles has a marked destructive action on the blood and certain other tissues of the guinea-pig. The changes in the tissues are probably due, primarily, to the agglutination and disintegration of the blood-corpuscles in the vessels. The action of such a serum depends upon the degree of immunization.

The hæmolytic action of rabbits' serum on guinea-pig erythrocytes *in vitro* is increased by the immunization of these animals with small quantities of guinea-pigs' blood. In this connection it is interesting to note that a marked increase can be produced by six injections, at intervals of a week, of so small a quantity as 0.001 cubic centimeter of defibrinated blood.

In experiments with tissues and organs that have not been freed of blood, the small amount of blood present may cause an increase of the hæmolytic amboceptors, as an increase is readily brought about by treating certain animals with very small amounts of foreign corpuscles. Nathaniel Gildersleeve (University of Pennsylvania Medical Bulletin, July-August, 1904).

SKIN DISEASES, COMPARISON OF PHOTOTHERAPY, RADIOTHERAPY, AND HIGH-FREQUENCY THERAPY IN.

In the vast majority of cutaneous affections the Roentgen ray is of greater utility than either the actinic or high-frequency methods.

In lupus the Finsen method, though tedious and disagreeable, is efficacious. The combined ray and high-frequency spark may prove to be equally good.

The actinic method is less beneficial in cancer than the Roentgen ray.

The high-frequency method is exact, no more disagreeable than the actinic, and for small lesions of epithelioma, lupus, lupus erythematosus, and many skin diseases gives quicker and better results.

All three can be advantageously combined for the different stages and phases

of a large class of affections. C. W. Allen (Journal of the American Medical Association, July 30, 1904).

SLEEPING SICKNESS (TRYPANOSOMIASIS), THE CEREBRO-SPINAL FLUID IN.

From cases recorded the writer arrives at the following provisional conclusions:—

In many cases the trypanosomes never find their way into the cerebro-spinal fluid, and in those cases in which they do they are more frequently to be found toward the termination of the disease.

The commencement of the fever or other symptoms is in no way correlated to the entrance of the parasites to the cerebro-spinal fluid. A large number of trypanosomes in the cerebro-spinal fluid is rare, but when it does occur there is usually an access of temperature. The parasites may come and go in the cerebro-spinal fluid as in the blood. Enormous numbers may appear in the blood without appearing in the cerebro-spinal fluid, and, to some extent, *vice versa*. When trypanosomes are present in the cerebro-spinal fluid its white cell elements are apt to be increased. In cases where the parasites gain access to the cerebro-spinal fluid early in the disease, mania and other head symptoms are more likely to be prominent. Cuthbert Christy (British Medical Journal, August 20, 1904).

STATUS EPILEPTICUS.

If the especial involvement of any particular type of cell is indicative of the essentially sensory or motor character of epilepsy, it would seem that Prus was correct in concluding that epilepsy is essentially a sensory phenomenon, as the cells of the second layer and the third layer, in lesser degree, are especially involved.

The essential lesion of epilepsy pertains to the nucleus of certain of the cortical cells and is of such nature as to seriously jeopard the cell for considerable periods and ultimately cause its destruction.

The chromatolysis in epilepsy is a nutritional change brought about by the nuclear toxæmia, since the nucleus presides over the process of elimination, absorption, and digestion in the cell unit.

The rôle of the leucocyte in the cortex after severe epileptic explosions is most probably that of a phagocyte.

The neuroglia overgrowth in epilepsy is one of its more remote sequences and probably occurs in response to toxic irritation. L. P. Clark and T. P. Prout (Amer. Jour. of Insanity, July, 1904).

STATUS LYMPHATICUS.

This condition, though recognized by the early pathologists, was by them regarded as a local condition in which the thymus gland alone was at fault. The general glandular hypertrophy was either not observed, or, if so, regarded as a coincidence. Little or no importance was attached to this manifestation until the observation of Paltauf, in 1890, demonstrated the pathological entity of the *status lymphaticus*.

The most constant morbid finding is the enlarged thymus, and in exceptional cases this may be the only manifestation of morbidity. Associated with the enlarged thymus there is a general hyperplasia involving part or all of the lymphatic structures. The lymph nodes of the neck, axilla, groin, and popliteal space may be enlarged, as may also the tonsils. Adenoids are an almost constant attendant. The retroperitoneal and mesenteric nodes share in the hyper-

plasia, and may become very large. Microscopically they present a hyperplastic state, with or without a vast increase in the number of germinal centers, the cells of the latter usually presenting a tendency to degeneration. In the intestines the follicles are all prominent. The spleen is usually enlarged, and gross section reveals the Malpighian bodies standing out with remarkable vividness; microscopically there is lymphoid hyperplasia, with an increase in the number of germinal centers. The kidneys frequently present a state of cloudy swelling, with evidences of hæmorrhagic extravasation. The liver may show fatty degeneration, and the liver cells on microscopical examination be markedly vacuolated. The bronchial nodes show the same changes as the glands enumerated, but, as a rule, are more succulent. Hyperplasia of the heart and blood-vessels is frequently observed, the aorta and its branches in particular being of small caliber, with walls thinner than normal.

Of the various theories as to the cause of sudden death in these cases, Biechele (Archives of Pædiatrics, July, 1904) inclines to that of Blumer: "We would suggest that individuals who are subjects of the *status lymphaticus* are born with an instability of the mechanism regulating the 'horror autotoxicus,' at any rate so far as the lymphatic apparatus is concerned, so that they are subject to intermittent attacks of lymphotoxæmia, which may lead to nervous phenomena of various kinds, or may cause death from cardiac paralysis." In Biechele's own case, in which autopsy was made, no evidence was found of unusual pressure upon heart, trachea, large vessels, or nerves. Two of the three cases reported illustrate the great susceptibility of these subjects of infection. In all of the cases epileptiform convulsions were present. Thymic asthma, a frequent symptom of the disease, was present in one case. One case gave evidence of rickets. Although usually coincident, rickets is not constant. Death is apt to occur from trivial injuries, from simple surgical procedure or slight illness. The report of the postmortem findings of the second case of Biechele's is most interesting: The thymus weighed fifty-two grams (normally nineteen grams). The tonsils were greatly enlarged, there were adenoids in abundance, marked evidences of rickets, bronchial lymph glands enlarged and succulent. The heart and lungs were normal. The spleen was enlarged, of normal consistency, the capsule smooth and free from adhesions; on section the Malpighian bodies stood out with great distinctness. The intestinal mucous membrane was pale, the agminate glands enlarged and elevated, while the solitary follicles varied in size from pin points to those as large as a split pea. The mesenteric and retroperitoneal nodes were also enlarged. There were no gross lesions of the kidneys, liver, or pancreas.

The grave type of the condition is undoubtedly infrequent, but we incline to the belief that in any case of lymphatic hypertrophy we have present the distinctive elements of *status lymphaticus*. The existing tendency to regard these hypertrophied states as trivial and to dismiss them with but a passing notice is fraught with danger, and until it is possible to point out distinctive features that will enable the diagnostician to differentiate, prudence should dictate the classing of all as *status lymphaticus*, for the most trivial injury or operation when complicated with this state may prove fatal. Editorial (Cincinnati Lancet-Clinic July 30, 1904).

SURGICAL INFECTION, IMMUNIZATION AGAINST.

Despite the most rigorous precautions and the utmost refinement in technique, infection of surgical wounds cannot always be prevented. Thus, in operations on the stomach and intestines, it is often impossible to avoid the development of peritonitis as a result of the escape of the contents of these viscera. Attempts have been made to increase the resistance of the peritoneum by the induction of artificial hyperleucocytosis. For this purpose subcutaneous or intravenous injections of albumoses and intraperitoneal injections of normal saline solution, bouillon, nucleic acid, and tuberculin have been employed experimentally, and in some instances normal saline solution has been injected into the human peritoneum in advance of abdominal operations as a prophylactic measure. In pursuance of this line of investigation, Professor Mikulicz-Radecki (Lancet, July 2, 1904) undertook the immunization of guinea-pigs to bacillus coli by intraperitoneal injections of virulent cultures of that organism, but deeming this method inapplicable to man, he proceeded to increase the general resistance to infection by the development of hyperleucocytosis. To this end injections of 0.85 per cent. sodium chloride solution, 2 per cent. neutral bouillon, starch in physiological salt solution, 2 per cent. aleuronat-mucilage, and 2 per cent. nucleic acid were made into the peritoneum and of 5 per cent. nucleic acid beneath the skin.

The most pronounced results were obtained with nucleic acid, the increase in the number of leucocytes being preceded by a diminution, while the temperature rose above normal, and the resistance of the peritoneum was increased from sixteenfold to twentyfold. The effects were heightened by repeated injection, either into the peritoneum or beneath the skin. Further, recovery occurred in animals protected by preparatory treatment, when the contents of the stomach or the intestines were forced into the abdomen through an opening made artificially, while control animals perished, and some animals thus infected were saved when treated within a short time subsequently. The phagocytic activity of the elements of the peritoneal exudate was early quite marked under these circumstances. The injections were found to be entirely innocuous. Observations were now made on human beings, 50 cubic centimeters of a 2 per cent. solution of nucleic acid being introduced beneath the skin. Fifty-eight cases were thus treated, operations on stomach, intestines, or other abdominal viscera being performed in 55 at varying intervals after the injection. It was observed under these conditions that, as in animals, hyperleucocytosis followed, though almost always preceded for an hour or so by hypoleucocytosis. Twelve hours was thought to be the interval between injection and operation yielding the best results. The injection was attended with local redness and tenderness and slight swelling for a day, and with moderate rise in temperature. At times there was a slight rigor and also vertigo.

While it is difficult to gauge the effects of the preparatory treatment, particularly in view of the comparatively small number of cases and of the observance of the usual aseptic and antiseptic precautions, the impression was gained that the results were better with respect both to the number of recoveries and to the progress of the individual cases than under ordinary circumstances. Thus, of 45 cases in which the abdominal cavity was opened and was exposed to infection by the contents of the stom-

ach or intestine or other infectious material, recovery ensued in 38, while in none of the remaining 7 was death due to peritonitis. The object of the injections is to induce hyperleucocytosis, and this end can be readily attained by intraperitoneal infusion of normal saline solution, and Mikulicz relates that he has for two years practiced free irrigation of the peritoneal cavity with warm normal saline solution in all cases of abdominal operation in which the peritoneum is exposed to the risk of infection. The procedure is so simple and so entirely free from danger and the results to be anticipated are so promising that it would seem a mistake not to adopt the measure whenever it appears to be indicated. The application of the same principle to cases in which perforation or rupture of abdominal viscera is threatened or has recently taken place also suggests itself in this connection. Editorial (Journal of the American Medical Association, July 30, 1904).

TUBERCLE BACILLI ISOLATED FROM THREE CASES OF TUBERCULOSIS OF THE MESENTERIC LYMPH NODES, A STUDY OF.

The bacilli isolated from these three cases of presumable food infection do not correspond to the bovine type of bacilli in any one particular.

They were readily cultivated from nearly all the guinea-pigs inoculated, and they grew luxuriantly from the start on dog's serum. Subcultures on glycerin agar and glycerin bouillon grew vigorously after the first transfer from dog's serum.

Morphologically the bacilli were either fairly long—*i.e.*, they averaged about 2 μ in length—or else they were very variable, polymorphic. The uniformly short, straight forms of the bovine type were absent.

In all cases the bacilli were of a very low order of virulence, lower even than that of many of the cultures of human origin studied heretofore. None presented the reaction curve of true bovine bacilli. Theobald Smith (American Journal of the Medical Sciences, August, 1904).

TUMORS OF THE BREAST, SUSPICIOUS.

There is a lamentable and unnecessary difference of opinion among surgeons as to the treatment of doubtful tumors of the breast. All tumors of the breast in patients over 40 must be considered malignant until proven benign. Most of such tumors demand amputation of the breast with exploration of the tumor, and a complete Halsted operation if there is then doubt as to benignancy.

An exploratory procedure should be planned to avoid contact of cut lymphatics with any tissues left behind, and any chance of dissemination of cancer cells by pressure before the removal of the breast.

X-ray treatment, aspiration, or any but radical treatment is objectionable as causing delay and dissemination. J. C. Stewart (Journal of the American Medical Association, August 6, 1904).

TUMORS, THE CIRCULATORY SYSTEM IN RELATION TO THE CURABILITY OF.

Tumors are more readily subjected to injury from without than normal tissues, because the circulating blood does not enter into close physiological relation with them. For tumors are not, like the regular organs, supplied by normally constructed vessels. The latter are simply tubes, made up in great part of endothelium, and not able to take part in blood-pressure changes. Instead of

branching like normal vessels, they constitute a network of interlacing canals. The size of these vessels, as regards their total area, is entirely out of proportion to the amount of tumor tissue supplied by them, for a large pedunculated growth may be nourished by a comparatively small vessel. The blood current is also slowed by the numerous sacculations and dilatations found in the course of these vessels. The rapid increase in size of certain tumors may be explained by assuming that the nutrient materials from the blood are entirely taken up by the tumor cells for purposes of growth and reproduction, as there are no other functionating powers to be supplied. H. Ribbert (Deutsche medicinische Wochenschrift, May 26, 1904).

TYPHOID FEVER, CARDIAC AND VASCULAR COMPLICATIONS AND SEQUELS OF.

Typhoid fever is a disease which, from a clinical standpoint, is often associated with symptoms suggestive of a grave weakening of the heart muscle. These changes, whether due primarily to direct action of the typhoid poison on the heart or to impaired nourishment from vasomotor paralysis, result, in a considerable proportion of cases, in a temporary insufficiency of the mitral valve as indicated by the appearance of apical systolic murmurs which are not infrequently transmitted to the axilla. These murmurs develop especially at the height of the disease, during the latter part of the first and in the second, third, and fourth weeks, and disappear usually with convalescence. Sometimes, however, they may persist.

Twelve out of 188 cases of typhoid fever who were followed from three months to fourteen years after convalescence showed conditions suggestive of organic cardiac lesion. In the majority of these cases a systolic apical murmur has been detected during their illness. Over one-fifth of old typhoids in whom during their illness a systolic apical murmur was detected showed on subsequent examination evidence of organic disease. The average systolic blood-pressure (Riva-Rocci) was higher in every decade among old typhoids than in healthy individuals who had never had the disease. The radial arteries were palpable with strikingly greater frequency in old typhoids than in healthy individuals of the same age who had never had typhoid fever.

Endocarditis, while not a common complication of typhoid fever, is probably more frequent than generally supposed. It was present without being suspected in 3 out of 95 cases coming to necropsy at the Johns Hopkins Hospital, while in 3 further cases out of 1363 the clinical symptoms suggested its presence. In the 3 cases discovered at necropsy, the lesion was due to a secondary mixed infection; in 2 instances staphylococcus aureus; in 1, staphylococcus albus. It is not impossible that endocarditis is more frequent than indicated by these figures. Out of 188 old typhoids, 8 showed mitral insufficiency; 1, aortic insufficiency; 1, possible mitral stenosis.

Pericarditis is an unusual and unimportant complication of typhoid fever. Three instances only were noted in 1458 cases.

Phlebitis and venous thrombosis is a frequent complication of typhoid fever, occurring in over 2.6 per cent. of the writer's cases. The onset occurs usually in the third week or later, and is ushered in in most cases of fever, leucocytosis and local pain. Not infrequently the fever and leucocytosis may precede the local-

izing symptoms. The complication was ushered in by or associated with chills in 28.9 per cent. of the writer's cases. Chills otherwise unexplained, occurring during the latter part of typhoid fever or in the early stages of convalescence, especially if associated with a leucocytosis, should always suggest the possibility of a developing phlebitis. The phlebitis is, in the great majority of cases, localized in vessels of the lower extremity and is especially frequent in the femoral veins—about one-half of the author's cases.

Thrombosis of the iliac and femoral veins is always a serious complication. Although the immediate dangers—extension of the thrombus, pulmonary embolism—are not great, the after-results are often grave. In thrombosis of the femoral or iliac vein the affected extremity is always permanently and considerably enlarged, and there is usually more or less persisting disability—extensive varicosities often resulting in ulceration, marked weakness of the limb: frequent cramps in the muscles, especially at night and after overexertion.

Arteritis and arterial thrombosis are more frequent complications of typhoid fever than is generally recognized. These complications appear to be especially common in the cerebral vessels, although they may occur in the extremities. The onset may occur at the height of the disease, but is commoner in the third week or later. As in the case of phlebitis, the attack is often ushered in by fever and leucocytosis. In the extremities arterial thrombosis is commonly followed by gangrene: in the cerebral vessels by hemiplegia. Arteritis in the extremities may be associated with partial parietal thrombosis from which nearly complete recovery may occur. In one of the writer's instances, the patient, a year and a half after his fever, showed characteristic symptoms of intermittent claudication.

A survey of pathological material would suggest that typhoid fever may be a not infrequent cause of focal arteriosclerotic changes. In 21 out of 52 cases in which notes upon the condition of the aorta were made there were evidences of fresh endarteritis. In 13 out of 62 cases in which the condition of the coronary arteries was recorded like changes were found. This idea is further supported by the remarkable frequency with which sclerosis of the peripheral vessels was found in old typhoids.

While the deleterious influence of typhoid fever upon the cardio-vascular system is not as great as that of acute rheumatism, yet, through the unfortunate frequency of the disease in this country, it is probable that post-typhoid cardio-vascular defects are not uncommon. It would be wise for the practicing physician to bear this in mind and, wherever possible, to keep his typhoid patients under observation for several years following the disease. W. S. Thayer (Mobile Medical and Surgical Journal, July, 1904).

TYPHOID FEVER, INTESTINAL PERFORATION AND PERITONITIS IN.

The author forms the following deductions from a statistical study of intestinal perforation in typhoid fever:—

It occurs more often in men than women—80.9 *vs.* 19.1 per cent. It is, like hæmorrhage, rare in children, and occurs in about 2.5 per cent. of all cases of typhoid. There occur 3.31 per cent. in the first week: 20.19 per cent. in the second week: 38.94 per cent. in the third week: 14.90 per cent. in the fourth week: 9.13 per cent. in the fifth week: 5.75 per cent. in the sixth week: 7.21 per cent.

from the seventh to the eleventh week, and has been observed as late as the one hundredth day (Curschmann). Holmes operated on 1 case after four months.

It naturally occurs more frequently in severe attacks, but may occur in mild attacks, and it may be the first real symptom of so-called walking typhoid. It occurs in the ileum in 95.5 per cent., usually in 18 inches of cæcum (Osler), always in 3 feet (Loison). In the large intestine in 12.9 per cent., and is most often situated in the ascending, transverse, and descending colon, sigmoid, and rectum, in the order named. It may occur, also, in the appendix, Meckel's diverticulum, and jejunum.

The perforation is single in 84 per cent. There may be 2 or more, and in 1 case there were 25 (postmortem). Cases with diarrhœa and tympany are more likely to have perforation. Six out of 30 cases occurred with hæmorrhage (Osler).

The death-rate given by Murchison is from 90 to 95 per cent. Osler says he could not recall a single case in his experience that has recovered after perforation had occurred. W. D. Haggard (Medical Record, July 16, 1904).

UTERINE DISPLACEMENT, THE EFFECT OF THE OPERATIONS FOR, UPON SUBSEQUENT PREGNANCY.

Fixation by broad attachment of the uterus to the abdominal wall in a woman of the childbearing period of life is contra-indicated without the employment of accessory procedure to prevent subsequent pregnancy. In cases where pregnancy is not to be considered it should be the operation of choice.

The objection to the suspension operations lies in the difficulty of obtaining the happy medium of a sufficiently strong attachment to give the surgical result and a ligament so placed as to be non-obstructive to uterine growth, with the great probability that the effect of the operation has been nullified by the successful outcome of the pregnancy.

The use of the round ligaments in any way suggested offers no obstruction to enlargements of the uterus, and the discussion on their use must be limited to the methods best suited to obtain constant support for the uterus.

Since experience has shown that the uterus by its own weight will pull away from the artificial ligament when attached anteriorly to the face of the fundus, so should it pull away from the round ligament if so attached.

So far, the round ligament sewed to the posterior wall, although the cases are comparatively few, seems to meet the requirements. H. P. Ritchie (St. Paul Medical Journal, August, 1904).

UTERINE DISPLACEMENTS.

Shortening of the round ligaments through the inguinal canal is the most satisfactory operation for the radical cure of retrodisplaced uteri, movable or fixed.

To free a fixed and displaced uterus, to perform conservative operations upon the same or the adnexa or to remove smaller tumors and moderately enlarged adnexa, a suprapubic abdominal section will in most cases prove very gratifying: Küstner's transversal division of the skin can be made use of in these cases with great advantage.

In suitable cases from the same transversal incision (Küstner's) the abdominal cavity may be entered and the round ligaments may be shortened outside the inguinal canal. H. J. Kreutzmann (American Journal of Obstetrics, July, 1904).

UTERUS, PHYSIOLOGY OF THE.

The author has made careful experiments upon the contractility of the uterus, in the case of rabbits having the organ in the abdominal cavity. He finds that it is easily excited to contraction mechanically, thermally, and by the galvanic and faradic currents. Spontaneous contractions were seen when it was withdrawn from the abdomen and suspended. The virgin uterus is the least irritable, the pregnant uterus more so than the nonpregnant. The excised rabbit uterus is weakly sensitive to the electrical current, especially to the faradic; but it is very responsive to thermal stimuli.

The excised human and rabbit uteri were found to differ in no essential way as to their electrical excitability. Chloral diminished the excitability of the retained uterus, while ergotin increased it, both drugs being administered hypodermically; atropine seemed to have no influence, while nicotine caused strong and lasting contractions. K. Franz (Zentralblatt für Gynäkologie, June 16, 1904).

UTERUS, RETRODEVIATIONS OF.

Rarely retroversion is congenital, and it is common in virgins. It is probable that improper clothing during the period of puberty, together with lack of exercise and of development, act as causative factors in fully as many cases of retrodisplacements as subinvolution after parturition.

Retroversion is essentially a pathological condition, in that it is, either directly or indirectly, in the majority of cases, a source of discomfort or disease. Retrodeviations are present in at least 15 per cent. of all gynæcological patients.

The intelligent use of the pessary will effect a cure in a large percentage of the cases, but when used unintelligently the pessary is positively dangerous, as is the case with most surgical instruments and appliances.

Surgical treatment of retrodeviations is absolutely essential to a cure in a large proportion of the cases. The Alexander-Adams operation of shortening the round ligaments is right in principle, and will, more or less modified, maintain its position as a classical operation for the cure of retrodisplacements.

No method of shortening the round ligaments within the abdomen will effect a cure in nearly all cases, because these methods fail to eliminate the weakest part of the ligament, the portion within the inguinal canal. The Gilliam modification of the Alexander-Adams operation is the operation of choice in these cases, because it is easy of execution and meets all the indications for the successful treatment of the displacement and of intra-abdominal complications which may be present.

Ventral suspension and ventral fixation are "unphysiological" operations. They should not be performed in the case of patients susceptible of childbearing. Vaginal operations for retrodeviations in fruitful women are mentioned only for condemnation. E. J. Mellish (American Medicine, August 27, 1904).

VACCINE.

Many of the domestic animals are susceptible to smallpox vaccine. The time of development varies notably, from three days in a guinea-pig to from nine to eleven days in a dog. This variation appears to depend on the resistance of the animal, and apparently does not increase or decrease the virulence of the vaccine. Vaccine grown for seventeen generations on guinea-pigs, where it develops in three to four days, when in-

oculated on heifers or dogs, takes the usual time for development in those animals. In guinea-pigs and rabbits, full-grown animals are decidedly more susceptible than young ones. Vaccinal immunization in cattle is not to any notable extent transmitted to the fœtus.

A great many chemicals have a destructive or germicidal action on bacteria, but in the list of chemicals thus far tried none have been found which show any special or specific action against the vaccine organism. The vaccine organism is not killed by glycerin, chloroform, chloretone, potassium cyanide, carbolic acid, or quinine, when these chemicals are not used in too great strength. At the same time all the ordinary bacteria, contaminating the vaccine, are destroyed.

Contrary to the opinion of many observers, the writer has not found that the vaccine organism decreases in virulence by repeated inoculation on calves. At one time a strain of vaccine was carried through eighteen generations on calves in eighteen weeks, destroying the bacteria in the vaccine with chloretone before making each inoculation. At the end of the time there was no apparent loss of virulence. C. T. McClintock (Journal of the American Medical Association, July 30, 1904).

VERMIFORM APPENDIX, ORIGIN OF.

The writer believes that embryologically the appendix is the distal end of a tube leading from the vitellus to the lower end of the embryo, and that the proximal part develops into the colon; that the umbilical vesicle and duct are the distal, or outer end of another tube or duct, of which the small intestine forms the proximal part. The two parallel tubes, joining by the umbilical ducts, become tortuous, and, touching the other tube at one point which is the most prominent part of its convexity in one of its turns, union takes place, the saeculation is increased, and the umbilical duct atrophies, and is necessarily removed from the other tube by the rapid growth of the small intestine, which fact accounts for Meckel's diverticulum, when present, being so far away from its fellow. After communication between the two tubes the large intestine increases in size and the cæcum is formed. Alfred Moore (New York Medical Journal and Philadelphia Medical Journal, July 23, 1904).

WATER, VALUE OF, IN DISEASE.

Attention is called to the importance of a plentiful administration of water, especially in those diseases accompanied by a rise in temperature, by E. Homberger (Berliner klinische Wochenschrift, June 20, 1904), for by this method the most distant cells may be reached and affected. Water is the great natural curative measure, and the easy method of application should not cause it to be neglected. As cellular pathology demands a cellular therapy, this agent seems to be the most rational means to attain that end. In the presence of fever especially the administration of water should be made a particular effort. As there is an insufficient quantity present in the system, and as the body is slow to give this up, a diminution in the quantity of sweat and urine results. The author claims that perspiration is only restored when the temperature begins to drop and the superfluous water is no longer needed. Where toxins have circulated in the blood for a considerable period, the giving of water is of great value, but where these products leave the system rapidly and unite with the

cells it can be of little avail. (Medical News, July 30, 1904.)

WORK AS A THERAPEUTIC MEASURE.

Among the many rational therapeutic measures which have been advocated of late years, small attention has been paid to the efficacy of work. Rest, massage, electricity, hydrotherapy, vibration, and many other means of treatment have been tried with much enthusiasm by various persons within and without the profession. Of these, perhaps none has had so enthusiastic a following as the so-called rest treatment, introduced in systematic form by Dr. S. Weir Mitchell and practiced indiscriminately ever since. That the rest treatment is useful and has again and again demonstrated its usefulness in appropriate cases there is no question. That it has been peculiarly misused is likewise not open to doubt. We venture to say, with small expectation of contradiction, that the rest cure, so called, has been far more satisfactory in the hands of its founder than in the hands of others, however conscientiously they may have attempted to carry out the lesson which he taught. As a matter of fact, all experience goes to show that our enthusiasm in many methods of treatment often get the better of our judgment, and that discrimination is easily lost in our effort to better a difficult condition. That this undue enthusiasm is however, a valuable, although unacknowledged, factor of the treatment must also be admitted, and with enthusiasm as such we must certainly have no quarrel.

In view, however, of all the time and attention which has been given to treatment by so-called rational methods, it is somewhat extraordinary that no systematic attempt has been made to systematize a method of treatment which shall have work, either physical or mental, as its fundamental principle. Of course, we recognize the fact that physicians are continually advising exercise, and often physical labor of a more or less definite sort, but so far as our knowledge goes, with the possible exception of Moebius, no one has mapped out a work cure in the same systematic fashion as a rest cure, for example, has been developed. We are so accustomed to consider our patients as individuals of lowered physical and mental vitality that we frequently overlook the fact that their appearance of invalidism is due to quite other causes than those for which rest and recreation could effect a cure. It becomes increasingly apparent, as one's attention is directed to the matter, that overwork, as the term is popularly used, means almost nothing. It is the rarest possible experience to come in contact with a person who is really suffering from overwork as such. His hours may be long, his work may be uncongenial, and his physical strength insufficient to meet the demands placed upon it, but to generalize and say that overwork, as such, is the cause of the innumerable nervous breakdowns which are everywhere about us is no longer to be maintained. Our conviction is growing, on the other hand, that the lack of proper employment is rather the source of the various failures which are familiar to every physician. That such employment of the mind and also of the body is conducive to health cannot be questioned, and we are inclined to think that if physicians insisted upon the necessity of work with anything like the frequency that they insist upon the necessity of rest, in dealing with the so-called neurasthenic invalid, they would accomplish far more definite results. If it be true that over-

work is rare, and that the moral and physical stimulus which work gives is desirable, it may hardly be questioned that a systematic treatment by work is as rational as a systematic treatment by any other means. If we could realize that many of the ills of life are due to perversions of natural processes rather than to fundamental defects, the rationality of a plan of work as opposed to a plan of recreation or rest or anything else would forthwith become apparent. We await with confidence the formulation of such a method of treatment, which shall have for its aim a building up of temporarily disordered functions through systematic effort and employment. This tendency in sporadic form we see about us everywhere, but its systematic application as a legitimate and useful therapeutic measure seems not yet to have been attained. Editorial (Boston Medical and Surgical Journal, August 11, 1904).

WOUNDS OF THE LIMBS, CONSTRICTION AS AID IN CHANGING DRESSINGS.

The danger of hæmorrhage and all inconveniences of changing the dressings on a limb are obviated by applying an elastic band to constrict the limb above the wound. The author has been utilizing this simple measure during the last two years, and announces that its advantages are obvious and manifold. The blood-pressure in the parts is reduced to zero and the blood-vessels are emptied by the anæmia induced. This not only prevents hæmorrhage, but protects the delicate granulation tissue from injury. The Esmarch bandage or ordinary rubber tube may be used, but a tube like that used in the Riva-Rocci sphygmomanometer will be found best adapted for the purpose, as also for operations on a limb. The tube is applied in a linen cover which can be sterilized. The chief advantage of this tube is that it can be inflated and flattened out at any moment, without removing from the limb, thus allowing the blood-pressure to be shut off or restored without the trouble of removing the tube. This is frequently an advantage in operating. L. Isnardi (Journal of the American Medical Association: from Centralblatt für Chirurgie, vol. xxxi. No. 24, 1904).

YEAST AS A REMEDY, THE GROWING APPRECIATION OF.

Until quite recently yeast was hardly used in medicine, except occasionally in an antiseptic and anodyne poultice and, administered internally, to prevent the continued formation of furuncles. Its rise to renewed importance as an article of the materia medica seems to date from its topical employment in vaginal leucorrhœa. In this direction its use has lately been extended by Audebert, of Toulouse, to the treatment of the leucorrhœa of pregnancy (Presse Médicale, July 30th). This writer has reported on its employment in 29 cases, including three of simple leucorrhœa, 1 of leucorrhœa with inflammation of the vulva and erythema, 14 of granular elytritis, 2 of granular elytritis with very intense erythema, 3 of gonorrhœal elytritis, 3 of vegetations of the vulva, and 3 of uterine trachèlitis. In these 29 cases the results were amelioration in 3, a cure in 24, and failure in 2. The vagina was first washed out with about 2 quarts of warm, sterilized water injected slowly, the rugæ being smoothed out with the fingers. It was then injected with a mixture of 2 tablespoonfuls of dried yeast dissolved in a quart of water. Finally, a tampon imbued with a syrupy mixture of yeast and

sterilized water was placed against the cervix. These procedures were repeated every morning.

Internally, yeast has been used with advantage in small-pox by Presta and Tarruella, who have since reported upon its employment in measles, scarlet fever, and erysipelas. It appears from a *résumé* of their observations given in the Revue Française de Médecine et de Chirurgie for August 1st that in the great majority of their cases of measles (28) and scarlet fever (17) the duration of the illness was decidedly shortened, not indeed by an abbreviation of the specific disease, but by the prevention of sequelæ. Under the use of yeast the cases speedily assumed a mild course. In each of these diseases, also in the cases of erysipelas, the amounts of dried yeast given in twenty-four hours were from 4 to 6 coffeespoonfuls. The number of cases of erysipelas treated with yeast was 24. The symptoms became milder immediately, though no local application was employed. It seems reasonable, in view of the reports that have been made of late, to expect that yeast will soon be generally recognized as one of our staple remedies. Editorial (New York Medical Journal and Philadelphia Medical Journal, August 20, 1904).

Books and Monographs Received.

The editor begs to acknowledge, with thanks, the receipt of the following books and monographs :—

Rural Sanitary Administration in Pennsylvania. 1903.——The Surgical Aspect of Indigestion and So-called Gastralgia. By James C. Wood, A.M., M.D., Cleveland, Ohio. 1904.——Paresis. By Amos J. Givens, M.D., Stamford, Conn.——Indications for the Use of Alkalies in Gastric Disorders. By Alfred W. Perry, M.D., San Francisco, Cal.——Simplicity in Diagnosis and Therapy of Digestive Disorders. By Alfred W. Perry, M.D., San Francisco, Cal. 1904.——Are Tenotomies for Hyperphoria Necessarily more Uncertain in their Results than those for Esophoria and Exophoria? By Samuel Theobald, M.D., Baltimore, Md. 1904.——A Case of Overcorrection of Convergent Squint without Operation. By Samuel Theobald, M.D., Baltimore, M.D., 1904.——The Therapeutics of Simple Diarrhœa. By Samuel E. Earp, M.S., M.D., Indianapolis, Ind. 1904 ——A Case of Pseudoleukæmia Successfully Treated with X-rays. By Oscar W. Steinwand, M.D., Salma, Cal. 1904 ——De l'Anémie Anchylostomiasique des Mineurs. Par le Dr. A. Manon riez, de Valenciennes, France. 1904.——Report on the Habit of the Kelep, or Guatemalan Cotton-Boll-Weevil Ant. By O. F. Cook. United States Department of Agriculture, Washington, D. C. 1904.——The Timber of the Edwards Plateau of Texas ; Its Relation to Climate, Water Supply, and Soil. By William L. Bray. United States Department of Agriculture, Washington, D. C. 1904.——The Useful Properties of Clays. United States Department of Agriculture, Washington, D. C. 1904.——Canned Fruit, Preserves, and Jellies : Household Methods of Preparation. By Maria Parloa. United States Department of Agriculture, Washington, D. C. 1904. ——The Commercial Cotton Crops of 1900–1901, 1901–1902, and 1902–1903. By James L. Watkins. United States Department of Agriculture, Washington, D. C. 1904.——Exhibit of Forest Planting in Woodlots at the Louisiana Purchase Exposition. United States Department of Agriculture, Washington, D. C. 1904.——Exhibit of a Forest Nursery at the Louisiana Purchase Exposition. United States Department of Agriculture, Washington, D. C. 1904.

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THE INTERNAL SECRETIONS IN THEIR RELATIONS TO THE PATHOGENESIS OF LOBAR PNEUMONIA.

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WHILE the mortality of pulmonary tuberculosis has decreased during the last forty years, that of pneumonia has steadily increased. During the year 1890 the proportion of fatal cases in 1000 deaths from all known causes, in the United States, was 90.6[1]; during the census year 1900 the corresponding proportion was

106.1. The deaths reported in the registration area during 1890 per 100,000 of population was 186.9. In 1900 this proportion had reached 192. In 1860 the corresponding ratio was only 44; in 1870 it was 102.4, and in 1880, 125.8. During the last forty years, therefore, the mortality of pneumonia has increased almost three and one-half times. As the deaths from "consumption" for the census year 1900 aggregated 109,750, while those from pneumonia reached 105,971, the latter disease may be said to be rapidly assuming the leading position among the foes of humanity.

The underlying cause of this steady increase of the death-rate cannot be ascribed to greater exposure incident upon unhygienic environmental conditions, squalor, etc., since all such conditions have, in the United States at least, steadily improved during the last three decades. That it is due to an increasing vulnerability of our organism to the influence of pathogenic germs is, therefore, probable. Unfortunately this happens to involve a problem of pathology upon which our knowledge is practically *nil*. Our text-books speak of "lowered vitality," "predisposing cause," "debility," "lowered resistance," "liability to infection," etc., but they fail to afford an explanation of the processes involved, the underlying *how* and *why*, and the literature of the subject is as sterile in established facts. Under the title "Susceptibility or Predisposition" Lazarus Barlow in the last (1904) edition of his excellent "Pathology,"[2] for instance, recognizes three forms: (1) "natural," (2) "acquired," and (3) "inherited." The *first* form is said to exist "when susceptibility is great and when the animal may otherwise be regarded as normal." Several examples are given, but no information is given as to the underlying cause of this condition. The *second* form "may be acquired, or a natural insusceptibility may be broken down by a variety of conditions," among which the author enumerates age, hunger and thirst, improper food, exposure to heat, cold, and moisture, fatigue and loss of blood, removal of organs, anti-alexin, and terminal infections; but how and why these "depressing conditions" are brought about in the organism remains as obscure as do the same features of the problem in the *third* form, viz., "inherited" susceptibility or predisposition. Indeed, elsewhere in the volume[3] the author clearly defines the present state of our knowledge in respect to this division—and which may be said to apply equally well to the others—when he says that "inheritance is one of the most certain, but at the same time one of the most inexplicable, of facts connected with disease." After giving a few examples he closes with the remark: "We must, therefore, not expect too much from general pathology; it is still groping in the dark in many directions. Experience tells us a multitude of facts for which pathology can as yet offer no explanation or one which is only in part satisfactory. This will always be so, for there are no more difficult classes of question to answer than those which ask 'Why?' and 'How?'"

The interpretation of the functions of the ductless glands I have submitted seems to me to afford a clue to the solution of this question—a most important one, since such a solution would probably enable us to antagonize with greater success the inroads of a disease which is rapidly becoming the greatest enemy of mankind. In order to show the connection between these organs and pneumonia, however, it is necessary to review the conditions under which the system acquires a predisposition to infection.

Environment and Infection.—Cities furnish the largest proportion of deaths. Work-houses, prisons, barracks, tenements occupied by the working classes, etc., and the concentration therein of a large number of subjects debilitated through exposure, alcohol, deficient food, age, etc., frequently become the seat of epidemics of pneumonia. In a single work-house at Middlesborough, England, Ballard[4] witnessed 43 cases. Rodman[5] observed 118 cases in a prison containing 735 inmates. Daly[6] treated successively four brothers, then their mother. The latter having succumbed, her mother who had come to attend the burial also acquired the disease and died. Equally suggestive examples of the contagiousness of the disease have been observed by Mosler,[7] A. Ross Matheson,[8] Hamilton,[9] Newsholm,[10] Kuhn,[11] Zimmermann,[12] and Sokoloff.[13] The latter author concludes, after an analysis of 2360 cases, that pneumonia can be transmitted from patient to patient in hospital wards. This deduction, as suggested by the foregoing data, is as applicable to other institutions or abodes wherein subjects rendered vulnerable by the factors enumerated are brought into close proximity. By isolating the patients and disinfecting the wards previously occupied by them, Sokoloff obtained a marked reduction both of the number of cases and of the complications in those isolated. That infection can occur from contaminated quarters is further shown by Jaworski and Chrostowski,[14] who treated five cases in a house which had not been free from pneumonia since 1860. The presence of pneumococcus in the dust of a room in which there were pneumonia patients has been demonstrated by Emmerich. Netter[15] also found virulent pneumococci in the dust of a hospital ward which had contained pneumonia cases.

Age.—There is a marked predisposition to pneumonia during the first 5 years of life. A period of fifteen years is then passed during which the body is less susceptible to the pathogenic elements of this disease, but after the age of 20 years there is a steady increase of vulnerability until old age is reached, when, with increasing years, the death-rate is very large. This is illustrated in the table given below, prepared from the last two (United States) censuses published. It gives the proportion of deaths during each census year for the five periods of life mentioned therein per thousand cases of pneumonia.

Per 1000 Cases of Pneumonia.

Census Year.	First 5 Years.	5 to 19.	20 to 39.	40 to 59.	60 and above.
1890	304.7	70.2	195.8	203.9	225.4
1900	382.6	59.1	147.6	171.5	239.2

The highest death-rate is thus shown to be borne by the two extremes of life.

Sex.—Although it is generally stated in text-books that pneumonia occurs more frequently among males than females, this can only be considered as applicable to middle life, *i.e.*, between 20 and 59 years, when the greater exposure to which males are submitted fully accounts for the greater prevalence of the disease among them. During the census year 1890 the excess over females during this period of life was 22 per cent., and in 1900 20 per cent.; but in early infancy, *i.e.*, up to 5 years, the difference between sexes is insignificant. Thus in 1890 it was 0.04 per cent. in favor of the males, and in 1900 0.03 per cent. in favor of the females. From the fifth to the twentieth year, however, which includes the periods

of childhood and adolescence, a noteworthy feature asserts itself: The female preponderate during both census years: 20 per cent. during 1890 and 10 per cent. during 1900. After the sixtieth year the preponderance of females over males is striking: in 1890 it was 25 per cent. and in 1900 39 per cent.

Disease and Inebriety.—Alcoholism not only predisposes the organism to infection, but it tends greatly to compromise the issue when the disease is present. In a series of 500 cases treated in the Pennsylvania Hospital and reported by G. W. Norris,[16] in which mortality was 25 per cent., the 34 cases known to have been drunkards showed a death-rate of 67 per cent. In 949 cases studied by Sears and Larrabee,[17] the mortality among abstainers was 25 per cent. and among alcoholic subjects 45.5 per cent.

Influenza, as is well known, is a frequent precursor of pneumonia since the former disease reappeared in December, 1889. A. B. Reynolds,[18] Commissioner of Health of Chicago, however, lays stress upon the fact that it should not be considered as the sole, nor even the principal, cause of the increased prevalence of pneumonia, this increase having begun long before the influenza epidemic occurred. Thus, while the increase of pneumonia from 1880 to 1890 was 49.7, that of the influenza decade from 1890 to 1900 was less than 5 per cent. It is mainly upon the aged that the morbid influence of influenza has shown itself in this connection.

Traumatism, a contusion of the chest, fractured ribs, etc., may give rise to what has been termed by Litten[19] *"contusions pneumonie."* Souques[20] studied 49 cases due to blows upon the chest without solution of continuity of the pulmonary parenchyma. He found a pleuro-pneumonia in the majority of cases, but the course of the pneumonia in all instances did not differ from that of cases usually ascribed to infection. He found pneumococci in the sputum of his case. Mandillon,[21] Gautier,[22] and others have found the pneumococcus in abscesses developed under such conditions. In a case immediately following a fall upon the pavement witnessed by Schild[23] the typical lesions of croupous pneumonia were present, though the injury of the thorax has been insufficient to be recognizable.

Geographic and Seasonal Influences.—The death-rate from pneumonia in the registration States was 69 per cent. greater in cities than in rural districts during 1890, and 72 per cent. in 1900, the increased ratio during the latter year being due to a further reduction of the rural mortality. The prevalence of the disease is more frequent and the mortality greater among the poor than among the better fed and housed classes. Latitude seems to have but little influence upon the death-rate, since New York State, which gave the largest mortality (228.4 per 100,000), and Michigan which gave the smallest (109.3) in 1900, are almost parallel as regards the location of their cities. When the proportion of cases of pneumonia to that of other diseases is taken into account, however, the mortality is greatest in the South Mississippi River belt, owing doubtless to the large proportion of negroes, in whom the death-rate from pneumonia is very large. Florida affords a notable exception, however, according to Fremont Smith.[24] At the Alicia Hospital (St. Augustine), for instance, 720 cases of all kinds included only 5 of pneumonia, 3 of which had been brought from elsewhere.

The statistics of Steiner,[25] based on 1157 cases; those of Seitz, which include 5905 cases; and those of Aufrecht, 1501 cases,[26] coincide in attributing to the

period between December and June the two-thirds of the cases of pneumonia. Herringham[27] found that during 1893 the average number of cases admitted in two weeks into Guy's, London, St. Thomas's, and St. Bartholomew's hospitals was 30 from January 1st to March 25th; 62 during April, May, and June; 27 1/2 from July 1st to October 21st, and, during the remaining ten weeks, 16. The time of greatest prevalence appeared to correspond with the period in which the daily range of temperature was wide in conjunction with a low relative humidity, and it almost exactly coincided with the east winds. A study of the statistics of cities situated in various parts of the world has led Newsholm[28] to conclude that the majority of cases occur in months from February to May. In the southern hemisphere, judging from conditions at Brisbane (Australia), as interpreted by David Hardie,[29] are such as to bring on the highest death-rate during August and September. The summer heat is very great, and the mortality was enhanced, when, in 1896, the atmosphere was concurrently very dry, *i.e.*, only 66 per cent. According to Hardie, pneumonia is more liable to occur under these circumstances mainly because dry air is better able to carry dust and germs than damp air.

Ether Anæsthesia.—As emphasized by J. M. Anders,[30] ether anæsthesia is, on the whole, infrequently met with. This is illustrated by statistics (including Prescott's and Silk's) based on 57,842 cases which furnished a ratio of 0.07 per cent. of cases of pneumonia. In a series collected by the same author in the records of six Philadelphia hospitals, 12,482 gave a proportion of 0.23 per cent. Prescott's statistics, based on 40,000 anæsthetizations,[31] refer to only 3 cases of pneumonia which could be ascribed to ether. Whitney[32] asserts that the most careful observations have shown that the disease in the most fatal cases differs in no way from the ordinary fibrous form, while cultures have shown that "it is caused by the same class of micro-organisms, at the head of which stands the pneumococcus." Anders calls attention to the interesting fact that gynæcological cases show a higher percentage, 6807 etherizations in this class of cases having given 23 cases of pneumonia, *i.e.*, 0.33 per cent. or about 1 case in 300 etherizations. He is inclined to ascribe this to the longer duration of this class of operations. Pasteur and Netter have found the micrococcus lanceolatus in the buccal secretions of 20 per cent. of well persons and accept Grossmann's view[33] that the pathogenic micro-organisms of pneumonia "are drawn downward into the respiratory tract by aspiration during ether narcosis."

Cold.—While subjects who reside in confined and overpopulated quarters, without undue exposure to inclemencies of the weather, etc.,—as is the case in prisons, almshouses, barracks, etc.,—contribute markedly to the list of pneumonia's victims, the disease prevails with relative infrequency among those whose occupation exposes them constantly to cold and damp, but in the open air and outside of cities. Pneumonia is less frequently met with in rural districts than in cities, we have seen, notwithstanding greater exposure of the inhabitants; it is only exceptionally met with among sailors. Sallard[34] states that it was extremely rare among Napoleon's troops during the retreat from Moscow notwithstanding the extreme hardships experienced. Exposure, hunger, cold, fatigue, alcoholism, and other known predisposing factors would, therefore, seem inadequate to produce the disease without some extrinsic pathogenic toxic to start it. Indeed, in large centers, Paris, for instance,

similar conditions give rise to dissimilar results, for hackmen contribute largely to the yearly contingent of victims. Still, the morbid effects of cold and damp cannot be overlooked. In 79 cases recorded by Chomel, for instance, cold is incriminated 14 times, while Grisolle found this cause to prevail in 45 of 205 cases. Sallard,[35] on the other hand, states that this pathogenic element hardly ever enters into the history of secondary or senile cases. Nor does it obtain in infantile pneumonia, I may add. The two periods of life during which pneumonia is by far most frequently met with thus become the identical ones, during which cold cannot be considered as a prominent etiological factor.

(To be continued in our next issue.)

Cyclopædia of Current Literature.

APPENDICITIS AND MEAT DIET.

At a recent meeting of the Academy of Medicine of Paris a careful study was presented dealing with the causation of appendicitis. The essayist, Dr. Lucas-Championnière, admits the increasing frequency of the disaese and gives full due to the theory of intestinal infection. Inquiring what gives rise to the greater frequency of such intestinal infection than took place formerly, he concludes that it is the grippe, and that appendicitis is, indeed, a new disease, having its origin in the grippe, which became epidemic about fifteen years ago. A cause contributory to and of as much importance as the grippe he asserts to be the eating of meat. He finds that appendicitis is confined chiefly to countries where meat forms a large part of the people's food and that it is invariably most severe in those who eat meat in excess, while vegetarians are almost free from it. Interesting statistics, covering many countries and years, are offered as proof. In every section of France the frequency of appendicitis increases in direct ratio to the increased consumption of meat. In convents, schools, prisons, asylums, where the diet is almost, or even entirely, vegetarian, cases of appendicitis are very rare. In one prison with 1000 prisoners only 1 case in four years; in another with 2000 inmates, 2 mild cases during 1903, 1 of them of long standing; in an asylum with 1500 inmates not a case in three years. In Roumania 1 case of appendicitis among 22,000 sick persons of a vegetarian population; 1 case among 221 sick persons, meat eaters. In Porto Rico the disease has not appeared among the natives, who are vegetarians, but is not uncommon among the Americans. On the basis of these observations it is easy to understand why appendicitis occurs with so much greater frequency in the United States than anywhere else, since animal food is an exceedingly large part of the people's diet. H. Speier (Wisconsin Medical Recorder, September, 1904).

APPENDICITIS OPERATIONS, INTESTINAL OBSTRUCTION FOLLOWING.

The rarity of intestinal obstruction in comparison with the innumerable operations for appendicitis is noteworthy. Obstruction may follow an attack of appendicitis which has not undergone op-

eration. Nine such cases occurred in a series of 86 cases, or 10 per cent. It may follow the "interval" operation. Eight cases, or 9 per cent., belong to this category. Obstruction is most apt to follow appendicitis with abscess formation. Sixty-nine, or 81 per cent., were of this class. Hence the necessity for early operation.

Mechanical obstruction may come on within a short time after the appendicitis operation, when the differential diagnosis from that due to peritonitis may present great difficulties. In doubtful cases operation should take place, for many patients have undoubtedly died, unoperated upon, with an unrecognized mechanical obstruction (with or without peritonitis) where the erroneous diagnosis was made of simple, uncomplicated peritonitis.

Obstruction may occur years after the original attack, or operation (*e.g.*, 10 cases occurred in the second year), when it may come on suddenly in perfect health, or preceded by a period with symptoms denoting "partial" (chronic) occlusion, the right interpretation of which symptoms, from a prophylactic standpoint, is of the greatest importance.

There may be several attacks of true, mechanical obstruction. In a series of 86 cases several attacks in 5, or 8 per cent. of the 57 patients who survived the first operation for obstruction. Of the 86 patients, 57, or 66.3 per cent., recovered after operations for obstructions. Twenty-nine patients, or 33.7 per cent., died. The small intestine was occluded in all of the 50 cases where it was noted.

The cause of the obstruction was given in 53 cases as follows: Constrictions by bands in 28 patients; volvuli in 10; kinkings, or angulations, in 11; and internal hernias in 4 cases. Gangrenous bowel was encountered in 5 cases, necessitating resection, resulting in 3 recoveries and 2 deaths.

A much smaller death-rate may be expected in the future, due to the earlier recognition of the symptoms and their more prompt relief by operation. Fæcal vomiting should not be waited for.

Prophylaxis consists in operating upon appendicitis before the formation of pus, the use of as little drainage as possible, and the least possible amount of handling of the intestine at the time of operation. Vigorous abdominal massage, with elevation of the hips, may avert an impending obstruction. Frequent change in the patient's position is likewise recommended.

Since the exciting cause is in many cases an attack of acute indigestion, patients should have their diet carefully regulated for from four to six weeks after an attack of appendicitis or after an operation. C. A. McWilliams (Medical News, September 3, 1904).

ARTERIOSCLEROSIS DUE TO LEAD.

From opinions quoted by the author, of the effect on the blood-vessels and on those organs which, when diseased, have an associated or resultant thickening of the walls of the vessels, he concludes that lead may produce a disease of the blood-vessels either directly or indirectly.

Directly, as shown by the numerous experiments on animals. Probably this is by the direct influence on the vessel of the lead in the circulating blood. Doubtless the walls of some of the larger arteries may be affected through the alteration in the nutrition, because of the primary toxic endarteritis, with the tendency to thrombosis and obliteration of the vasa vasora.

The undisputed fact that lead may

cause gout, and the equally true proposition that in gouty individuals arteriosclerosis occurs early, may explain the influence of lead in producing arteriosclerosis in rare cases.

Experimental and clinical observations prove incontestably that lead will cause nephritis. This is usually the contracted kidney, which sooner or later has associated with it the thickened arteries and left cardiac hypertrophy.

Lead intoxication may lead directly and indirectly to arteriosclerosis.

The recognition of lead intoxication during life, by any of the ordinary symptoms or by the basophilic granulations of the cells of the blood, in an individual suffering with arteriosclerosis, with or without nephritis, would not, perhaps, permit us to say definitely that the lead was the sole causative disease factor. It would, however, be a rational therapeutic measure to safeguard the individual against further intoxication with lead in the treatment of the arteriosclerosis. F. S. Billings (Journal of the American Medical Association, September 17, 1904).

ARTERIOSCLEROSIS, THE RELATION OF ACUTE INFECTIONS TO.

As the result of an analysis of the records of nearly 4000 patients entering consecutively the medical wards of the Johns Hopkins Hospital, the authors find the following:—

The percentage of palpable radial arteries is materially higher among those individuals in whom there is a history of heavy physical labor and of the use of alcoholic stimulants than in the remaining cases. This percentage is appreciably higher in the cases giving a history of heavy work.

The percentage of palpable radial arteries is higher among those cases presenting a history of severe infectious diseases than among those in which this history is absent or among those in which a history of no causal factor could be obtained. The proportion is, however, far below that in the case of work or alcohol.

Rheumatism appears to be the acute infection after which the percentage of palpable vessels is highest, and, next to rheumatism, typhoid fever. W. S. Thayer and C. E. Brush (Journal of the American Medical Association, September 10, 1904).

ARTERIOSCLEROSIS, THE RELATION OF ALCOHOL TO.

From a study of the influence of alcoholic liquors in the production of arteriosclerosis, the writer gives the following conclusions: Only 6 per cent. of 283 cases of chronic and excessive alcoholism under 50 years of age showed any evidence of arteriosclerosis. Of 45 cases of arteriosclerosis examined by the author at the Massachusetts General Hospital, only 13 per cent. gave any history of alcoholism. Of 656 autopsy cases of arteriosclerosis, only 95, or 14.5 per cent., were under the age of 50. Out of these 95 cases under 50, in which arteriosclerosis was found postmortem, only 21 per cent., and, if the cases complicated by chronic nephritis are excluded, only 17 per cent. appear to have consumed alcohol in any notable excess. Richard Cabot (Journal of the American Medical Association, September 17, 1904).

ARTHRITIS AND ENDOCARDITIS.

In a fatal case of rheumatism, endocarditis, and chorea a streptococcus was isolated from the blood before death. This organism did not differ materially from the common varieties of streptococcus pyogenes in cultural properties.

but produced very characteristic lesions in rabbits when injected intravenously. Such inoculations were always followed after a few days' incubation period by a multiple arthritis, which usually started in the ankles. In one rabbit extensive vegetations were found on the mitral valve, while typical infarctions were seen in the spleen and kidney. The writers believe that this streptococcus is the same as that described by Wassermann, Meyer, Poynton and Paine, and Walker, and considered at least by the last three observers to be the specific cause of rheumatic fever. M. J. Lewis and W. T. Longscope (American Journal of the Medical Sciences, October, 1904).

BILIARY TRACT, SURGERY OF THE.

Gallstones should be removed whenever they are known to exist, whether they offend or not, provided the patient's general and local conditions are favorable.

Drainage should be employed until the bile spontaneously ceases to flow through the wound. Hernia in the scar is best prevented by a muscle-splitting incision. Biliary fistula means a common duct obstructed usually by a gallstone, and it requires a second operation to close it or a cholecystenterostomy. M. H. Richardson (Journal of the American Medical Association, September 3, 1904).

BLOOD-PRESSURE AND PULSE-RATE.

The blood-pressure increases in the brachials from the standing to the head-down positions, inclusively, in the following order: Standing, sitting, left lateral, right lateral, supine, and head-down. The greater the hydrostatic resistance in the upper portions of the circulatory system, the greater the increase in pressure where the nervous and respiratory are kept normal. An increase of resistance is accompanied by an increase in heart strength; the strength of the heart, therefore, will increase in the different positions in the following order: Standing, sitting, left lateral, right lateral, supine, and head-down. The pulse-rate decreases in the same order that the blood-pressure increases. The decrease in the pulse-rate is a conservative act on the part of Nature to protect the heart itself and the central nervous system. O. Z. Stephens (Journal of the American Medical Association, October 1, 1904).

CERVICAL GLANDS, ENLARGED, INDICATIONS FOR OPERATION ON.

Prophylactic surgical measures consist in the removal of tonsils that are chronically enlarged or subject to frequent inflammation, and the proper care of carious teeth, as also of any other irritative conditions about the head. Cases exhibiting recrudescences after proper medicinal, hygienic, and, if possible, climatic treatment should be treated surgically. Cases with beginning periadenitis and all cases that have advanced beyond this stage should be treated surgically. The operation of election is complete extirpation of all enlarged glands, together with the fascia in which they lie. W. A. Dennis (St. Paul Medical Journal, October, 1904).

CERVIX, INJURIES OF, CALLING FOR SURGICAL INTERFERENCE.

Trachelorrhaphy in skilled hands is practically free from danger. In all instances where the uterus is enlarged, the cervix everted, and there is hardness about the cervix, trachelorrhaphy should be performed. In all nervous diseases occurring in women cervical work may be necessary to overcome symptoms remote from the cervix. Even a slight

amount of cicatricial tissue in the cervix should, in these cases, be removed and the rent closed.

The laity should be instructed regarding the relationship existing between cervical tears and malignancy. In all instances where a cervical catarrh is perpetuated because of the laceration, trachelorrhaphy, with other necessary work, should be done. J. C. Wood (Homœopathic Journal of Obstetrics, Gynæcology, and Pædiatrics, September, 1904).

CIRRHOSIS OF THE LIVER, REGENERATIVE CHANGES IN.

In the ordinary type of interlobular cirrhosis there is a primary destructive process leading to the disappearance of portions of the cell mantle surrounding the central vein of each lobule. The framework of the lobule persists, but usually collapses, and there is produced an irregular lobular mass in which the central vein is in places left more thinly covered by the radial strands of liver cells, or even completely exposed and surrounded only by the connective tissue framework. The remaining liver cells proliferate rapidly by mitosis and generally increase the size of the portion of the lobule which is left. In this process they sometimes assume temporarily almost the form of bile-duct cells. The connective tissue bands which run through the liver and separate these irregular hypertrophied remains of lobules consist of pre-existing connective tissue together with some which is newly formed. Numerous bile-duct canals course through these bands, and it is thought that these are produced by proliferation from the pre-existing bile-ducts. The degeneration of compression of liver cells in the production of this appearance is not thought to be of importance. That the canals are composed of proliferating cells is shown by reference to a fresh case in which mitoses were abundant in their walls and by the fact that they frequently sprout out to form isolated bulbous masses of new liver cells. The bile-duct epithelium and the liver cells are shown throughout these processes to be equivalent so far as the regeneration of the liver tissue is concerned.

The anatomical picture presented by a cirrhotic liver is, therefore, usually one in which the regenerative processes are the most striking, the destructive process being sometimes evident, sometimes entirely past, and represented only by the widespread scars.

Cirrhosis of the liver may be defined as a chronic disease in which destructive processes, probably often repeated, result in a loss of the functional liver tissue immediately followed by the formation of a scar, the healing process, and later by an attempt at the restitution of the liver to normal by regenerative processes. W. G. MacCallum (Journal of the American Medical Association, September 3, 1904).

CITRATE OF SODA IN INFANT-FEEDING.

The advantages accruing from the use of citrate of soda are: It renders the curd of cows' milk more easily digestible. It is cheap. It is convenient to handle, easy to control, and progressive in principle. It allows the milk to be given in a more concentrated form and thus avoids, to some extent, the danger of underfeeding. There is no danger of scurvy. Given as a medicine it gains the confidence of the mother. The indications for its use are as a routine for weaning a healthy infant and substituting cows' milk, and for correcting milk dyspepsia. The drawback is a tendency to constipation, which is, however, easily

controlled. The limitations are: In rare cases of complete intolerance of cows' milk; in severe cases of gastro-enteritis from impure milk; in organic disease, such as congenital hypertrophic stenosis; in very intractable cases which have been subjected to all sorts of different methods beforehand. As a routine method for the artificial feeding of the poor child, the best is citrate of soda in the milk, provided the milk is sound. F. J. Poynton (Lancet, August 13, 1904).

DIABETIC NEURITIS.

The nervous system is particularly susceptible to the action of various chemical agents, whether introduced from without or generated within the body as a result of metabolic or infective processes. That in some instances the central, and in other instances the peripheral, division, and in still other instances both divisions of the nervous system, should suffer under such circumstances, must be due to differences in chemical affinity beyond present means of determination. No doubt, isolated symptoms of neuritis have for a long time been observed in cases of diabetes, but it is, of course, only since knowledge on the subject of the former has become well defined that an understanding of the connection between the two has been possible.

The clinical phenomena to which peripheral neuritis gives rise are at times so much like those of locomotor ataxia that it is not surprising that the symptoms were for a long time attributed to disease of the spinal cord; and in this connection the question may be fairly asked whether there is not, after all, some relation pathologically between the gray matter of the anterior horns of the spinal cord, on the one hand, and the sensory nerves and the posterior columns of the cord, on the other hand.

In a recent communication, Dr. F. W. Pavy (Lancet, July 2 and 9, 1904), who has devoted much attention to the study of diabetes, and who was one of the first to describe the symptoms of neuritis as a complication of that disorder, discusses some of the varied phenomena of diabetic neuritis. He points out that cramp may occur in the absence of signs of neuritis, being especially marked when the amount of sugar in the urine is large, and he attributes the phenomenon to the direct effect of the sugar passing through the system on the muscular substance. The characteristic symptom of diabetic neuritis is a want of muscular co-ordination, without actual paresis. The ataxia is, as a rule, not so marked as under other conditions. At first the gait is unsteady and insecure, and somewhat like that of an intoxicated person, while later the patient may be unable to get along without the aid of a stick or the arm of a friend. The ataxic diabetic patient can maintain his equilibrium when standing with his feet together and his eyes shut much better than the tabetic. The ataxia may be unattended with sensory phenomena, while conversely these may be marked when the ataxia is slight.

Fibrillary contractions unattended with any sensation are sometimes visible over some muscles. They appear as wavy oscillations or twitchings beneath the skin. Hyperæsthesia localized to different parts is frequently present. At other times there may be numbness, tingling, a sensation of pins and needles, and other paræsthesiæ. Sometimes the soles of the feet are tender, so that walking is painful, or the patient may not feel the ground properly, or he may seem to be walking on pebbles or on pointed pro-

jections. Aching, deep-seated pains in the extremities, sometimes conjoined with lightning-pains, may be present, and often there is complaint of tenderness of the flesh and bones. The pain is usually worse at night than by day, and the patient may find difficulty in placing the legs in a sufficiently comfortable position to permit of sleep. Occasionally girdle-pain is observed. The knee-jerks are often abolished in cases of long standing, although they may later be restored, with reduction in the amount of sugar in the urine. Should the vasomotor nerves be involved, there may be local flushings and pallor of an abnormal nature, and the hands or feet may become hot and florid or blanched and cold. Trophic disorders also may result. For example, gangrene of the toes or perforating ulcer of the foot, cataract, loosening of the teeth, xanthoma, boils, or carbuncles.

Diabetic neuritis is most commonly symmetrical in distribution, and the upper extremities are more frequently involved than the lower. All four extremities may, however, be affected together, or exceptionally the upper alone. Involvement of the right lower extremity, the right side of the body, and the right upper extremity has been observed. Sometimes the disturbance is confined to a single nerve, such as the sciatic or the brachial. In some cases symptoms of angina pectoris have been noted, but these have yielded to treatment of the diabetes. Involvement of the third nerve, with ptosis and external strabismus, has been reported.

In the opinion of Dr. Pavy, the development of the neuritis complicating diabetes is attributable to the presence of sugar in the blood, and the treatment consists in measures directed to a reduction of the amount of sugar, especially careful dieting. In addition potassium iodide, 5 grains, with ammonium bromide, 10 grains, has been administered thrice daily with benefit. Should these fail to bring about the desired result the continuous galvanic current may be employed, and when there is severe superficial pain a liniment containing aconite may be applied with advantage. Editorial (Journal of the American Medical Association, September 3, 1904).

DIAZO REACTION, CLINICAL STUDY OF.

The diazo reaction is of importance in differentiating a relapse from a complication in typhoid fever. It may be of signal assistance in separating measles from German measles. It has great prognostic significance in pulmonary tuberculosis. It does not appear until late and is usually noted in a rapid case. When it once appears it persists until death. The average duration of life after the appearance of the diazo is about six months. An unfavorable prognosis should be given in every patient presenting this reaction.

The diazo reaction at a dilution of 1 to 40 is of some value in the diagnosis of typhoid fever, but upon employing a dilution of 1 to 150 other conditions are eliminated (except a small percentage of tuberculous cases), and the test, therefore, is considerably enhanced in value. W. T. Cummins (University of Pennsylvania Medical Bulletin, September, 1904).

DISLOCATION OF THE HIP, CONGENITAL.

A certain proportion of cases of congenital dislocation of the hip are intrinsically incurable, owing to anatomical obstacles which are hopelessly beyond the surgeon's control. The acetabulum may be too shallow to retain the head in position; the head and neck of the femur may be so imperfect or deformed as to

be quite unsuited for articulation; or there may be such contraction of the soft tissues as to form an insurmountable obstacle to reduction. The x-ray is of great value in many cases in determining the actual anatomical conditions.

Subcutaneous or open division of tendinous, muscular, and ligamentous tissues which obstinately oppose reduction may be resorted to with benefit in certain cases when reduction by manipulation alone is impracticable. In about 10 per cent. of the cases treated by the Lorenz bloodless method a perfect anatomical and physiological cure will be obtained.

In some cases of apparently perfect cure redislocation may occur, even several months later. A repetition of the operation will be followed by ultimate success in some of these relapsed cases.

In probably 60 per cent. of the cases treated by the Lorenz method a true anatomical replacement is not secured, but an anterior transposition of the head of the femur is brought about. In a considerable proportion of these cases the condition of the patient is greatly improved, the shortening being diminished, the limp lessened, and the characteristic deformity largely or completely obliterated. In a word, there is a large and distinct functional gain.

The ideal age for operation is from 3 to 5 years. Under 3 years of age replacement is easy, but the difficulty of keeping the plaster dressings from becoming very foul is almost insuperable. After 5 years reduction is often very difficult, but success may sometimes be attained up to the age of 13 years, and even beyond. Within reasonable limits the age of the patient *per se* has less to do with success or failure than the anatomical conditions in and about the joint in the individual case. One may fail in a patient of 7 years and succeed in another of 10 or 12 years.

The operation usually is perfectly safe. Accidents have occurred, however, both in the hands of Lorenz and other surgeons. The possible accidents are thus summed up by Ridlon: Paralysis from overstretching; fracture of the neck of the femur; fracture of the shaft of the femur; fracture of the ramus of the pubes; fracture of the ischium; tearing of the perineum; rupture of the femoral artery; gangrene from cutting off the circulation through stretching the femoral vessels.

The results in the cases operated upon by Lorenz himself and by his followers on this continent have, on the whole, proved disappointing.

Open methods of operation, which permit some of the obstacles to reduction to be discovered and removed, and which afford the surgeon the opportunity to satisfy himself that his manipulations have really placed the head of the femur in the acetabulum, are likely to be largely adopted in the future, the bloodless method being reserved for very young patients and cases where objections to the use of the knife cannot be overcome. H. P. H. Galloway (Canadian Journal of Medicine and Surgery, September, 1904).

DISLOCATIONS, OLD, UNREDUCED.

Early immediate diagnosis is the most important element in preventing the existence of old, unreduced dislocation. With ether, the x-ray, and anatomical and surgical knowledge, a recent displacement ought always to be discovered by the surgeon. Immediate reduction by manipulation or open operation should follow.

An old, unrecognized dislocation should be carefully examined under the

x-ray and ether to discover the extent of adhesions and the possibility of effecting reduction without extreme measures. The manipulations to be practiced are practically the same as those employed in recent luxations, but greater caution is necessary. Failing in these, continuous extension in bed should be practiced for a week; the second attempt, without the application of extreme force, should then be made, the permission of the patient having been previously obtained to permit of open operation, if deemed necessary.

Open section should include the division of all muscular, tendinous, capsular, and bony obstacles to reduction. When the socket is filled up with dense, fibrous tissue, such tissue should be excavated, and the head of the bone placed *in situ*.

Partial or complete excision of the head and of fragments in case of fracture will frequently be necessitated.

In cases that have existed more than a year, or where the original injury has been extreme, operation should be avoided unless pressure on nerves or blood-vessels is seriously impairing the usefulness of the limb or giving pain, but resection should be practiced in bad late cases, with pain and serious nerve symptoms.

Sepsis is frequent on account of the severity and length of the operation, and especially by reason of the nonresistive ability of the tissues due to the original injury and to repeated traumatisms from manipulative efforts.

Pain, disability, age, and occupation are the most important conditions in arriving at a decision concerning operation. When a limb is useful in its new position, gives no pain or difficulty, it should be let alone.

In the after-treatment, muscular gymnastics, electricity, voluntary and involuntary muscular movements, and massage are very important measures, and should be persistently employed. These manipulations require both patience and pluck on the part of the patient. De Forest Willard (Journal of the American Medical Association, September 24, 1904).

ENURESIS IN CHILDREN.

Rey (Berliner klinische Wochenschrift, vol. xli, No. 35) has been studying 52 cases of enuresis in children. He found that chemical analysis almost invariably demonstrated that the urine of such children was abnormally irritating or that there was some lesion in the urinary apparatus. In 19 of the 52 cases examined he found the urine turbid from enormous quantities of colon bacilli present. They were in bunches like granules floating in the opalescent urine. Such urine has generally an acid reaction and smells stale. Prolonged treatment of the entire uropoietic system was required to cure these cases of bacteriuria. Long-continued use of salol, with a strict milk diet of regularity of meals, proves more successful than irrigation of the bladder. In 2 cases of recurring hydronephrosis with high fever, in girls aged 16 and 3, the palpable tumor vanished as a large amount of turbid urine was evacuated, and the fever subsided. These conditions kept recurring until the bacteriuria was conquered or checked by long salol and urotropin medication. Internal treatment is alone able to reach and cure such cases. Latent cholecystitis is particularly frequent in girls, and is not seldom the cause of the pale, depressed, and irritable condition of the children who suffer from enuresis. As such cholecystitis rarely induces marked bladder symptoms, it is generally over-

looked. Twenty-four of his series of 52 bedwetters belonged to the category of simple mucous cystitis, due to general acid intoxication. The strong ammoniacal urine irritates the bladder lining and induces a condition similar to that of "irritable bladder." Infants in this condition are liable to scream every time they urinate, and hold back all the urine they can. Frequently the trouble is ascribed to phimosis; but salol and dieting will in many instances cure it without an operation. In case a phimosis operation is undertaken, the irritating urine is liable to prevent healing or cause such complications that surgical intervention should be strictly contra-indicated. In 3 other children there was pronounced phosphaturia; in another excessive uric acid output. The first were treated with milk diet and avoidance of vegetables, the latter by being put on a vegetable diet, all promptly recovering. In 3 other cases the enuresis was conquered by blunt detaching of the prepuce and removal of clumps of smegma in the corona glandis. The remaining 2 children in the series were affected with oxyuria. Some writers attribute the enuresis at night to fright in bad dreams, but the author thinks that the bad dreams are probably the result of the impulse to urinate or of emission of irritating urine. He thinks it is possible that the enuresis of early infancy, due to irritation of the bladder, may possibly survive its cause. These are the cases of sudden cure after faradization, epidural injection, etc. When the bladder irritation still persists, all such measures will be futile. Chemical and bacteriological examinations should be made in every puzzling case of enuresis, and more attention should be paid to the catarrh of the bladder in infants, with cystoscopy of girl infants and older boys. (Journal of the American Medical Association, October 1, 1904.)

EPILEPSY AND ACIDITY OF THE URINE, RELATION BETWEEN.

Galdi and Tarugi (Il Morgagni, June, 1904) describe a case in which the precise correspondence between epileptic attacks and the appearance of labial herpes led Professor de Giovanni to suspect that the epileptic fits were connected with hyperacidity of the urine. Numerous examinations of the urine were made and tabulated by the authors, who find themselves in a position to affirm the existence of a connection between epilepsy and urinary acidity, and to deny the existence of a connection between epilepsy and urinary toxicity. They measure the toxicity of the urine by means of the amount of urine per kilogram of body-weight, which must be injected into a rabbit's veins to kill it. They give reasons for rejecting the plan of diluting the urine until it is isotonic with rabbit's blood. They attach great importance to experimenting with rabbits of the same kind, and find that the resisting power of rabbits to urinary toxins varies with the color of the animal, black rabbits resisting most and white rabbits least. Fifty-six examinations of urine are recorded, including eleven examinations in which the toxicity was measured experimentally. The authors carefully distinguish toxicity or the power to cause the death of the animal experimented upon from the power to cause convulsions, and find the two properties to be quite distinct. The conclusions at which they arrive are as follows: The specific gravity of the urine was related with the acidity, but not with the toxicity of the urine. The acidity did not correspond to the toxicity of the urine. The increase of the acidity of the urine coincided with

the diminution and ultimate disappearance of the power to cause convulsions. The urine in this patient was generally hypotoxic, a few times hypertoxic, but only when tested in the intervals between the fits. The authors, therefore, could trace no causal relation between the increase of toxicity and the epileptic fits. The power to cause convulsions was always present in the urine passed just before a fit, never in that passed after. There was a relation between the urinary acidity and the fit inasmuch as the acidity was increased after a fit. Basing their opinions on these observations and deductions, the authors adopt and amplify the theory of Ceni, who held that epilepsy was caused by two different substances. They hold that one of these is an acid substance circulating in the blood in the period between the attacks and stimulating the cells to produce a second substance which has the power of directly causing convulsions.

The authors also record a series of observations on the comparative powers of resistance of the red blood-corpuscles, just before and just after a fit and in the intervening period, to different hypotonic solutions of sodium chloride. They find this resisting power diminished in the epileptic patient, the diminution being more noticeable just before a fit, and less so just after it than during the intervening period. (British Medical Journal, September 24, 1904.)

EPILEPTIC SEIZURES, MODE OF ARRESTING.

The author has found that clonic spasms can be suppressed and the consciousness restored by placing the epileptic on his left side during the tonic period. This method of arresting the seizure was first proposed by McConaghey, of Edinburgh, and the author has found it successful in every instance in which it has been applied. Crocq (Fourteenth French Congress of Neurology and Psychiatry; Semaine Médicale, vol. xxiv, No. 32, 1904).

ERYSIPELAS, TREATMENT OF.

Soubbotine (Roussky Vratch, July 31, 1904) in treating erysipelas, used two well-known remedies in a special manner. At the very onset of the disease the affected parts are covered with a 10 per cent. ointment of ichthyol, while the periphery of the eruption is rubbed with mercurial ointment in order to prevent the spread of the blush. The bowels are opened and moderate doses of sodium salicylate are given every two hours. At night codeine is administered, and, if the heart is weak, caffeine is given three times daily. Ice to the head is useful when there is marked headache. Good results were obtained with this treatment by the author in ten cases of erysipelas. (New York Medical Journal and Philadelphia Medical Journal, September 17, 1904.)

ETHYL CHLORIDE AS A GENERAL ANÆSTHETIC.

The use of ethyl chloride for purposes of general anæsthesia has passed the experimental stage. The position of the drug, so far as danger is concerned, has not yet been definitely determined, though taking all available statistics into account, it can be reasonably assumed that it is safer than chloroform, probably safer than ether. The future will, no doubt, accord it a place somewhere between ether and nitrous oxid gas. Only the *pure* preparation of the drug should be used for general narcosis.

The best method of administration is some form of the "open" method—either of the Ware mask or the ordinary

gauze compress, the former requiring a smaller amount of the drug. Its use is especially indicated in young subjects. It is not suited for prolonged operations, and as it does not produce complete muscular relaxation it cannot be especially recommended for the reduction of dislocations, and possibly of fractures, and for divulsion of the anal sphincter. It is indicated in the various brief surgical procedures occurring in dispensary service of general surgery; in short operative measures in gynæcology; in a fairly wide field in obstetric practice; and in much of the operative work of the nose and throat specialist. A. B. Craig (American Medicine, October 1, 1904).

EXTERNAL CAROTID AREA, THE STARVATION OPERATION FOR MALIGNANCY IN.

The starvation plan, in sarcoma, has in some instances effected permanent cures—that is, shrinkages—not otherwise possible; but it is not asserted that such may always be expected. Since, however, this plan is admittedly a *dernier ressort*, any percentage, however small, of such permanent checking of malignancy is a victory not otherwise possible.

In both sarcoma and carcinoma the knowledge on the part of the patient that by this method he has one more chance, though all other plans have failed, and the growth be beyond excision, restore his courage and cheerfulness and puts aside the imminence of despair.

Even in cancers, a few weeks' longer life is reasonably sure, sometimes up to a year, otherwise impossible when other plans have failed. At first thought, if it should prove but a month or two of gain, it might be questioned whether it be worth while. But in the writer's experience patients are grateful for even a short respite; and the decision is for them to make as to whether it is worth while. Given a man of wide business interests, for example, a few weeks longer in which to stave off the inevitable may mean everything to him in the orderly winding up of his affairs.

Again and again the writer has found the resultant shrinkage of tumors to give promptly the greatest relief to suffering, and permit the patient to cut down or stop the large doses of morphine formerly demanded. This important point has also been observed by other operators.

Given a growth of the region under discussion, excessively vascular, perhaps, and too large to be cut out, in several recorded instances (one of them, the first of all, nine years ago) this operation has so shrunken the mass and so deprived it of blood as to permit, after a short time, an extirpation of the tumor, partial or complete, not otherwise possible. R. H. M. Dawbarn (Journal of the American Medical Association, September 17, 1904).

FATS, ABSORPTION OF, IN INFANTS.

An experimental investigation of the varying capacities of the absorption of fats in the infantile intestine was made by P. Nobécourt (Revue Mensuelle des Maladies de l'Enfance, August, 1904). The amount of fat absorbed is found by taking the difference between the amount taken in with the food and the quantity found in the fæces. In this way may be obtained the coefficient of absorption. It is necessary, however, to take into account the quantity of fat ingested, for, in fact, if the infant take very little fat, nearly all of it may be absorbed, while, on the other hand, if a great deal is ingested, a large amount will be found in the fæces, even though the digestive and absorptive powers may be quite marked. In general, healthy, breast-fed infants

have a very marked absorptive capacity for fats, even though they be prematurely born. A more or less constant impairment of this capacity is found in weak, dyspeptic infants, in infants sick with intestinal or pulmonary infections, in cases of myxœdema. In convalescents from measles the absorption of fats is normal. In determining the kind of food the infant should have, it is necessary to take account of its fatty absorption coefficient. In infants who ingest a quantity of fat too great in proportion to the amount absorbed, it is necessary to diminish if not the quantity of milk, at least the quantity of fat. In certain cases skimmed milk or buttermilk produces excellent results. (Medical News, September 17, 1904.)

GLYCOSURIA IN PREGNANCY.

The variety of sugar present should always be determined in pregnant cases. Lactosuria is not pathological and so requires no treatment. Small amounts of glucose may occasionally be present as an alimentary glycosuria and are without significance. Diabetes may be caused by the pregnant condition and so be a cause of fatal results. True diabetics seldom become pregnant. Mortality for both mother and child is very high. W. H. Watters (Homœopathic Journal of Obstetrics, Gynæcology, and Pædiatrics, September, 1904).

GOITER, ARSENIC AND PHOSPHORUS IN.

The object of the author's research was to determine the influence of arsenic and phosphorus upon the functions of the thyroid gland, the subject having been suggested through the recent work of Kocher and others, who claimed that a combination of arsenic and phosphorus is beneficial in the hypertrophic affections of the thyroid gland. Theoretically this is possible in virtue of the effect of these two therapeutic agents upon metabolism. The author administered arsenic and phosphorus to animals deprived of a portion of the thyroid gland, and also upon animals who had been artificially hyperthyroidized. The thyroid glands of these animals were removed and showed the following changes: In animals who had been poisoned by both arsenic and phosphorus nothing was found microscopically which was more characteristic of the one poison rather than of the other. In the animals which died of rather acute poisoning the thyroid glands were found congested, with enlarged superficial veins. They were also slightly larger than the normal glands of these animals (dogs). In the more chronic forms the glands assumed more and more atrophic features, became yellow, anæmic, and dry. Histologically, in the acute forms of poisoning there was a dilatation of the capillaries, and the interstitial lymphatics of the gland contained colloid masses. The epithelium of the gland was almost always normal, rarely clouded or altered. It seemed, therefore, that the changes in the gland were independent of the degenerative processes in the other organs. Only in the most protracted cases of poisoning was there an extensive degeneration of the thyroid epithelium. These experiments do not show how phosphorus and arsenic can benefit a goiter, as Kocher claims. While in the acute forms there is a certain amount of diffusion of the colloid substance into the lymphatics, and an alteration in the quality of the colloid substance itself, there are in the chronic cases a series of changes in the parenchyma of the organ that do not at all indicate an improvement in the goiter. The experiments here noted prove that there is a diminu-

tion in the secretion of the gland after the use of arsenic and phosphorus. This treatment can help a goiter, not through an increase in the normal functions of the gland, but through changes in the epithelium or through the diminution of the colloid secretion. Luigi Macaggi (Riforma Medica, August 10, 1904).

GOUT, VARIATIONS IN THE EXCRETA IN.

The endogenous purins are increased by the administration of sodium salicylate, and this increase does not arise from excessive cell destruction, but probably from diminished destruction of already formed uric acid.

The exogenous purins are metabolized by gouty patients almost as well as by normal individuals, any slight retention being due to increased capillary pressure and subsequent slowing of the lymph stream, and not to the formation of abnormal compounds.

The endogenous purins in gouty individuals may possess peculiar affinities and combine with abnormal products of proteid metabolism. The presence of constipation in gouty patients is accompanied by an increased output of uric acid, this excess, however, apparently arising from diminished destruction of the formed uric acid. I. W. Hall (British Medical Journal, September 24, 1904).

HÆMORRHOIDS, INTERNAL, INJECTION TREATMENT OF.

The rectal speculum devised by the elder Martin should be inserted to its full extent, the obturator removed and by gentle rotary and downward motion the mucosa carefully examined. When the edge of the speculum is withdrawn as far as the upper margin of the internal sphincter, any hæmorrhoids present on the side examined will prolapse into the mouth of the aperture. Selecting the largest one for treatment, the patient by coughing renders this more prominent. The surface should be carefully swabbed off with some mild antiseptic solution (such as creolin, 1 per cent.) and the injection made directly into the most prominent portion of the pile. The speculum should be withdrawn before removing the needle, allowing the rectal walls to collapse and preventing the escape of fluid or any bleeding. Ordinarily the author inserts a suppository containing 32 milligrams ($^1/_2$ grain) of cocain to prevent the slight discomfort which may be felt for an hour or so, and also a suppository containing 0.18 cubic centimeter (3 minims) of ichthyol. The ichthyol suppositories are used during the entire course of the treatment, one to be inserted after each bowel movement and one at bedtime. The syringe employed is an ordinary all-metal hypodermic fitted with a four-inch metal extension. The needles are No. 27 gauze and three-fourths of an inch long. The solution used is composed of equal parts of phenol Bonœuf and distilled water, freshly prepared and filtered. Should the fluid become opaque it must be discarded. Ordinary cases require an injection of from 0.42 to 0.92 cubic centimeter (7 to 15 minims). The injections should be made at intervals of from five days to a week, and only one pile should be treated at a visit. Under no circumstances does the author inject external hæmorrhoids nor any structures covered by true skin. Internal hæmorrhoids and cases in which there is a prolapse of the mucous membrane only are treated by this method. When an internal hæmorrhoid, from long-continued irritation and inflammation, has become excessively hypertrophied and fibrous, the wisest course to pursue is to anæsthetize the

tumor and remove it surgically. The injections should be continued until all the hæmorrhoids have been absorbed and the rectal mucosa does not prolapse into the speculum to any extent when the patient coughs hard. If any hæmorrhoidal tissue remains, the percentage of recurrences will be materially increased. If the recurrence does take place and the primary divulsion has been performed thoroughly, a second divulsion rarely is necessary, and the patient usually can be relieved permanently by a few additional injections. A. F. Martin (American Medicine, August 27, 1904).

INTERRUPTED CIRCULATION AS A THERAPEUTIC AGENT.

The writer discusses the physiological action of "interrupted circulation" in the treatment of rheumatoid arthritis. He believes that the emptied arteries suddenly receive a ramming charge when the tourniquet is removed, and that the internal surface of the capillaries and of the lymph spaces, in which they are immersed, is submitted to sudden stimulation. On the other hand, during the preceding stage of ischæmia a certain amount of suction must have existed within them, not only owing to the collapse of the elastic tissues, but also from the intravascular negative pressure set up by the procedure. The tendency would be for the emptied blood-vessels to suck up some of the remaining tissue lymph or in cases of inflammation some of the more fluid inflammatory exudates. In rheumatoid arthritis, with its special features of immobilization of the joints and of stagnation of the lymphatic circulation, both theories would fulfill direct indications; and it proves to do so in the two cases cited by the author. The technique is exceedingly simple. A padded armlet of soft leather, or a circular pad of lint and cotton-wool of sufficient thickness to protect the nerves, having been secured around the upper arm or the thigh, a loop of India-rubber tubing of suitable thickness is passed behind the limb over the pad, and the two ends of the loop are strongly put on the stretch with one hand. The other hand grasps the tubes close up to the front of the lint, thus tightening the loop into a strong ligature or tourniquet. The degree of arterial occlusion depends on the strength with which the two ends of the loop are pulled up, the limb having previously been drained of much venous blood by raising it and by stroking the larger veins empty. The compression quickly induces blanching of the skin and numbness of the extremity, similar changes doubtless taking place through the thickness of the limb. For ordinary purposes half a minute or at most two minutes of this will suffice. The tube is then let go, and this is at once followed by a bright cutaneous flush of capillary injection and a pleasant feeling of warmth. The same manœuvre is repeated, say six times, at intervals of a few seconds. Two or more such sittings may be used daily. In both the author's cases the results have been most satisfactory. The synovial and lymphatic effusions have been benefited more largely than the periarticular fibrosis, and this is consistent with the views expressed as to the probable mode of action of this method. In the treatment of the stiffness of joints there is a definite help in the numbness which accompanies the stage of ischæmia, and which allows, within prudence, an increased amount of passive motion to be applied. The method would, therefore, be specially promising in the early stages and in the exudative forms of rheumatoid arthritis, it being understood that it is merely an

adjunct in treatment, from which no other available resource can be spared, whether local or constitutional. William Ewart (Lancet, August 13, 1904).

KERATITIS, HEREDITARY SYPHILITIC INTERSTITIAL.

It is certainly of clinical importance to positively determine the presence or absence of the patellar reflex, as it is a very strong index of the condition of certain tracts of the nervous system. If it was absent in as large a percentage of cases as the Wood and Lang series leads one to believe, it would signify that those who gave positive lesions of congenital syphilis also suffered from derangements in the conducting nerve paths. However, by far the greater majority of such cases as present at least interstitial keratitis do not present any significant deficiency in the conducting paths of nervous impulses, directly attributable to the syphilis.

Furthermore, if the patellar reflex in this class of cases was absent without showing other definite causes at some time or another for the absence, then the reflex would materially deteriorate as a diagnostic symptom in a very large range of cases. No doubt this class of cases can develop conditions which will produce an absence of the patellar reflex, but that virus of congenital syphilis which gives rise to the interstitial keratitis does not, as is evident, cause the absence of the reflex at that given time. It may, and if it does, then other manifestations are present in addition. It would be interesting to note whether cases of congenital syphilis, which show but little activity of this protean disease, do give any evidences of decided variations in the patellar reflex phenomenon. This has never been done so far as the writer knows. Whether the slight variations in this reflex act are to be attributed to the syphilitic virus or to the probable attending malnutrition cannot be definitely determined. Still, it is known that malnutrition will at times produce conditions not unlike those of constitutional syphilis. At all events it is seen that there is no connection between the interstitial keratitis and the patellar reflex range, other than that which can be explained by conditions able to produce an abnormal reflex act. G. F. Suker (Medicine, September, 1904).

KIDNEY, CAPSULE OF THE.

Decapsulation of the kidney in healthy animals may and usually does cause an interstitial nephritis. New blood-vessels are formed in such adhesions as occur, these vessels being of but temporary character, as they are later occluded by the contraction of the cicatricial tissue surrounding them. The ultimate result is a newly formed capsule not differing essentially from the original one, except in its tendency to persistent and uneven contraction. Haven Emerson (American Journal of the Medical Sciences, October, 1904).

LEUCOCYTES, ABSORPTION AND ELIMINATION BY, OF FOREIGN SUBSTANCES.

Maurel affirms that the amount of a poison necessary to kill the animal is the same proportion as is necessary to kill the single leucocyte. Opium paralyzes the leucocytes and prevents phagocytosis; consequently it is illogical to administer it in affections in which the cooperation of the leucocytes is desired. The leucocytes incorporate the foreign particles and digest them if possible. If not, the digestion is completed in the lymphatic ganglia where the leucocytes carry them, or the foreign particles ac-

cumulate in the ganglia if absolutely insoluble. The author reviews a large number of the latest theoretical and experimental researches on this subject. They demonstrate that insoluble substances may be used in therapeutics without hesitation. They may act less rapidly, but they are utilized in time by the intermediation of the leucocytes, and, although somewhat late, their action is all the more durable. The part played by the leucocytes in draining the system of injurious substances and transporting them out of the organism rehabilitates the old method of fixation abscesses as a therapeutic measure of great value in certain infections and intoxications. M. Labbé (Presse Médicale, No. 64, 1904).

LEUCOCYTOSIS, VALUE OF, IN THE DIAGNOSIS OF INTRA-ABDOMINAL SUPPURATION.

Since the publication of Curschmann's well-known work in 1901, the study of the behavior of the blood in the presence of suppurative processes has been widely extended. Previous to this time the changes noted in the blood were viewed with a purely theoretical interest, and to Curschmann must be given the credit for formulating conclusions based on actual observation which have come to be regarded as of great practical importance in determining therapeutic measures and establishing a prognosis. Investigation has been mainly pursued along two lines —the study of leucocytosis and the glycogen reaction, or, as the latter may be more properly designated, the idiophilia of the white blood-cells. Idiophilia of the leucocytes, however, has not been regarded with much favor, as the views with reference to its prognostic and diagnostic value vary within wide limits, and the technical difficulties are much greater than those involved in the mere counting of the leucocytes.

The term leucocytosis as at present employed is intended to refer to transitory increase of the white blood-cells, and to it must be ascribed a merely symptomatic significance. Only the absolute number of leucocytes can be taken into consideration as having any direct bearing on the diagnosis; the relative proportion between the red and white cells is of no value. It is essential, therefore, to count the leucocytes in every individual case, but the physiological leucocytosis which occurs during digestion, pregnancy, and a number of other conditions must always be taken into account when pathological processes are present.

Virchow was of the opinion that, whenever glandular irritation was present, a leucocytosis resulted. This idea was soon discarded when it was discovered that certain diseases like typhoid fever were accompanied by a leucopenia rather than a leucocytosis. It is now a matter of common knowledge that there are very few inflammatory processes which are not accompanied by a leucocytosis, and for this reason the phenomenon possesses little value as a means of differential diagnosis as claimed at one time by Limbeck. The question at the present time hinges not only on the increase, but on its degree, and one is led to ask whether a leucocytosis of from 22,000 to 25,000 always denotes the presence of an abscess as stated by Curschmann. This is apparently contradicted by reports of even greater numbers being associated with severe hæmorrhage, pregnancy, and other conditions. Pneumonia, sepsis, erysipelas, polyarthritis, and inflammations of the serous membranes are known to bring on a well-marked leucocytosis. Bearing this

in mind, can it still be claimed that intraperitoneal suppuration is characterized by abnormally high leucocyte values? Rudolf Türkel, in a very complete critique on this subject (Centralblatt für die Grenzgebiete der Medizin und Chirurgie, August 5, 1904), believes that a negative answer must be returned to the question at least in this form. The numerous extraneous conditions which are liable to bring about a leucocytosis must be carefully excluded before its presence can be taken to denote suppuration, even in a clinically characteristic case. Curschmann's observations were directed entirely to the question of inflammatory processes in the cæcum or appendix, the extent of the leucocytosis being in a definite relation to the anatomical changes in this region. These observations were soon confirmed by a number of other investigators, and the results of their researches may be summarized as follows: If an exudate is purulent, no matter whether it exists in the form of a circumscribed abscess, or of a diffuse suppurative peritonitis, a leucocytosis of over 20,000 is present. This must persist for several days, however, and a single observation is not conclusive. In appropriating these results for diagnostic purposes, it is quite thoroughly agreed that clinical signs must be given their full value. A negative outcome, however, is admitted to prove neither the absence nor the presence of suppuration. It is a matter of record that when abdominal abscesses are firmly encapsulated, no well-marked leucocytosis is present. This phenomenon can be explained only by a study of the circumstances which influence the production of a leucocytosis. Numerous investigations have been conducted with reference to the site and the manner of infection, but in this connection individual predisposition is evidently of the greatest moment. The appearance of a leucocytosis as a phenomenon of reaction is naturally dependent upon the ability of the body to react. In a weakened, marantic organism the ability to combat the infection and to produce a reaction is either absent or diminished.

It appears reasonable to assume that the appearance of a leucocytosis may be traced to chemotaxic influences which manifest their effects on the hæmatopoietic organs. It has been shown that there are a large number of substances which, when injected into the circulation, bring about a leucocytosis, these including not only drugs, but bacteria and their products. If we apply this knowledge to the topic under discussion, it signifies that when toxins from an abscess are absorbed by the circulation, a leucocytosis results, provided, of course, that the inherent powers of the organism to produce a reaction have not been affected. When the abscess is surrounded by a dense capsule, absorption is more or less completely prevented, no chemotaxic action is developed, and no leucocytosis is produced. But even here the leucocyte curve is of value. At the beginning of the attack it will be noted that the number of leucocytes is increased considerably, and, as encapsulation proceeds, the number sinks, but does not reach normal figures. Operation in cases of this class is often undertaken too late, and, when done, an abscess cavity is found filled with old, stinking pus. The patient's chances would have been much better if timely operation had been instituted.

From what has just been said, it is evident that a negative leucocyte count—that is, the finding of normal or only slightly increased values—should not be taken as contradicting the diagnosis of

abscess. The consensus of opinion among most observers, however, is that a positive result affords a more certain indication of the presence of suppuration than any one other clinical sign. This applies in particular to intraperitoneal suppuration originating in the appendix or the cæcum. The effect of suppuration in other parts of the body has also been studied, but apparently the reaction of the peritoneum to irritants is more rapid and well marked than that displayed by the remaining tissues. Whether serous surfaces, such as the pleura, have similar properties is still undetermined, but in the case of the peritoneum it is definitely proven.

The question as to the advisability of operating in any given case of appendicitis is unsettled in many minds, and the controversy as to whether the treatment of the disease comes within the domain of the physician or that of the surgeon is not fully decided. The pendulum has swung in both directions. In every case in which the presence of an abscess can be diagnosed with certainty only one method can be considered, and that is surgical interference. Dieulafoy's assertion that it amounts to actual crime not to turn over every case of appendicitis to the surgeon for treatment is withdrawn, and contrary to general experience. Although Curschmann's discovery is of undoubted value, caution must be exercised in drawing conclusions from the presence of a leucocytosis in any given case, and the therapeutic indications should be based on the combination of all the clinical signs taken together. In doubtful cases, however, the critical application of this procedure may confirm the possible diagnosis of abscess, and then this phenomenon may serve to point the way for a modification of the manner of treatment. Briefly stated, the following factors must be taken into consideration in applying this procedure in order to make it of value: (1) contributory causes which may produce a leucocytosis must be carefully excluded; (2) repeated leucocyte counts should be made; (3) a positive result comprises leucocyte values of from 20,000 to 25,000, taken in connection with involvement of the peritoneum; (4) a negative result must never be taken as negativing the presence of a suppurative process. Editorial (Medical Record, September 17, 1904).

LEUKÆMIA, ACUTE, IN EARLY LIFE.

All cases of leukæmia are myelogenous in origin. As in adults, the acute variety is more apt to be of the lymphocytic type. The disease is rare in early as well as in later life. It is probably more common than has been supposed, however, twenty-two cases of the acute or subacute variety having been reported since 1898, while previous to that date only seven cases are on record.

The course in children differs from the adult type only in minor details; hæmorrhages are fewer and less severe, the lymphocytosis is more apt to be of the small variety. The disease is always fatal. It is suggested to use injections of sera in treatment. Experimental inoculations with leukæmic blood and with cultures of pathogenic organisms are desirable, such inoculations to be directly into the bone-marrow. F. S. Churchill (American Journal of the Medical Sciences, October, 1904).

LINGUAL GOITER.

Lingual goiter is a tumor at the base of the tongue, arising from an accessory thyroid gland which may be found in the course of the development of the thyro-glossal duct. It has all the char-

acteristics of ordinary goiter. It occurs almost exclusively in women between the ages of 15 and 40 years. It grows slowly, and may exist for years without causing any annoyance until some unknown cause stimulates its growth and produces symptoms. These are functional and constitutional, and consist of trouble in swallowing, breathing, and speaking, accompanied by frequent hæmorrhages.

The tumor is round or ovoid, elastic, and covered with a very vascular mucous membrane, and is almost never ulcerated. Dermoid cyst offers the only difficulty in differential diagnosis, but this is generally yellow, grows rapidly, pits on pressure, and has not the vascularity of goiter.

Operation is the only radical cure. There are two ways of reaching the tumor, namely: through the mouth and through an incision in the suprahyoid region, the former being the best. The prognosis is good. H. B. Storrs (Annals of Surgery, September, 1904).

LOBAR PNEUMONIA, METEOROLOGICAL CONDITIONS IN THE CAUSATION OF.

The seasons exert a marked effect upon the prevalence of lobar pneumonia, the maximal mortality being observed during the winter and spring months. Insular climates probably manifest the greatest rise in pneumonia mortality in winter, while that of continental climates coincides mainly with spring. The mortality of the epidemic form of the disease is, to a less extent, influenced by the seasons and may occur in the fourth and even third quarter of the year.

An apparently close relationship exists between periods of low temperature and the death-rate from pneumonia. The mortality rises and falls with the barometric pressure, the maximal level being reached during periods of highest pressure and *vice versa;* that the barometric pressure, however, is governed by the temperature, being inversely as the latter, is to be recollected.

The average velocity of the winds and the death-rate from this disease would appear to stand to one another in the relation of cause and effect (a provisional explanation of this fact being found in the controlling influence exerted by the winds upon temperature and barometric pressure).

The coincidence of existing low temperatures, high barometric pressure, the direction and velocity of the winds, and maximum mortality from pneumonia is so uniformly constant as to merit serious consideration, and suggest a close and direct relation between their combined influence and the progress of mortality from pneumonia.

The mean relative humidity of the atmosphere shows equally decided variability during the periods of abeyance in the prevalence and fatality of the disease with that of the cold or annual pneumonia season.

The major influence exerted by the seasons, however, is probably not direct (*e.g.,* by a lowering of the bodily resistance due to low temperature, high barometric pressure, direction and velocity of the winds, etc.), but indirect, namely: by bringing about that effective element in the causation, concentration and increased virulence of the specific poison in consequence of closed doors and windows and lack of free ventilation. J. M. Anders (American Medicine, September 3, 1904).

MEMBRANOUS ANGINAS, NONDIPHTHERITIC.

The nondiphtheritic pseudomembranous anginas may be divided into several groups, each of which is a more or

less distinct clinical entity associated with a species of microbe either alone or in great preponderance. These non-diphtheritic anginas are important not only because of the necessity of differentiating them from diphtheria, but also because *(a)* they are frequently transmissible and *(b)* their treatment should vary according to the micro-organism present. The present imperfect knowledge of these anginas should be added to by carefully made and carefully recorded clinical observations in connection with full bacteriological investigations.

In order to determine as early as possible the etiological factor in anginas, direct coverslip or direct slide preparations from the membrane (as well as cultures on the ordinary diphtheria media) should be made by the physician on his first visit. These should be dried without heating, then fixed by heat and either strained by the physician or sent to a laboratory with the culture for further examination. This technique should be supplemented wherever possible by cultures on media more suited to the development of nondiphtherialike micro-organisms than is Loeffler's blood-serum, such, for instance, as broth, agar, etc., both neutral and acid. L. B. Wilson (St. Paul Medical Journal, September, 1904).

MENSTRUAL PERIOD, BATHING DURING.

All forms of bathing during the menstrual period are largely a matter of habit, and usually can be acquired by cautious and gentle progression; but not for every woman does this hold good, and surf bathing, where the body surface remains chilled for some time, should always be excepted.

A daily tepid sponge bath (from 85° to 92° F.) during the menstrual period is not only a harmless proceeding, but is demanded by the rules of hygiene. In the majority of, if not all, women, tepid (from 85° to 92° F.) sponge bathing after the establishment of the menstrual flow, namely, second or third day, is a perfectly safe practice. Further, in most women the habit of using the tepid shower or tub bath after the first day or two of the flow can with safety be acquired. J. C. Edgar (American Journal of Obstetrics, September, 1904).

MIDDLE EAR DISEASE, ACUTE, TREATMENT OF.

In all diseases affecting the naso-pharynx reasonable precautions should always be used to avoid tubal infections. Adenoid tissue, in any amount, and tonsils producing any pathological symptoms, should always be removed. With the first symptoms of earache heat and dehydrating remedies should be used; should this not produce beneficial results in a few hours, surgical treatment should be resorted to. When possible, with a catheter a mild continuous stream of hot air should be used early, and repeated in eight or ten hours.

If symptoms are not relieved by these methods within from ten to twenty-four hours, free incision should be made through the entire drum, or extended into upper canal wall if necessary. Aseptic gauze drainage should be used and outside pad for absorption. Never under any conditions should the patient be allowed to suffer tortures for more than forty-eight hours and remain exposed to the risks of complications. J. A. Donovan (Medical News, September 17, 1904).

MYOCARDIAL INFARCT, CARDIAC MUSCLE IN ORGANIZATION OF.

At the border of myocardial necrosis from infarction there occurs, either from

the influences about to lead to solution of the dead mass, or as part of the reactive inflammatory change, sarcolysis of the ultimate fibrils of muscle through at least a short extent of the muscle fiber just outside the necrotic mass. This sarcolysis leaves, as remnants of the original fiber, structures which indicate the prior existence of a sarcolemma sheath and of interfascicular septa growing from the former into the interior of the fiber as more or less complete investments of the ultimate fibrils.

In this solution of the muscle fibrils it is not essential that the muscle nuclei should likewise disappear, although by karyolysis they may be destroyed. If persistent it is possible that actual nuclear growth and multiplication may take place, at least in a minor degree and for a short period. Such persistent nuclei are surrounded by a small amount of hyaline myoplasm and constitute the spindle-cell elements interpreted as myogenous connective tissue by some, the cells thus formed staining as does connective tissue.

The fine fibrillæ or membranous remnants of the sarcolemma and interfascicular septa in a passive sense may contribute themselves as part of the fibrillar substance of the resultant scar, and by Mallory's selective stain cannot be differentiated from the proper new connective tissue fibrils of the scar.

The ultimate destiny of the persisting nuclei with their cell-like protoplasmic investment cannot be definitely declared. The specimens in hand do not show any progressive features other than occasionally direct multiplication at the earliest stage of the process. On the other hand, the relative absence of these nuclei in the cicatrizing lesions, and the presence of small groups of pigment granules which probably mark the original situation of such nuclei, and the appearance of karyolytic changes in late stages of the process of organization in this or that example, and of atrophic forms, all speak for their eventual disappearance; and in the specimens mentioned no suggestion of actual metaplasia is afforded whereby such spindles inclosing the persistent muscle nuclei may become true connective tissue. A. J. Smith (University of Pennsylvania Medical Bulletin, September, 1904).

NEUROFIBROMA OF ACOUSTIC NERVE.

The acoustic tumor syndrome is well defined, and the diagnosis can be made with practical certainty. This presupposes not only the diagnosis of the location of the tumor, but its nature and comparative size. It must, however, be observed that other slowly growing pathological conditions in the posterior fossa might simulate closely this condition. The slow and essentially benign nature of the growth, its noninfiltrating character and enucleability would all favor surgical interference. The deep situation at the base in immediate proximity to vital centers offers *very serious obstacles.*

From personal observation, the writers believe that the surgical technique should be perfected along the following lines:—

(a) The avoidance of undue concussion in the removal of the bone and enlargement of trephine opening.

(b) A method of extirpation by which the tumor could be extirpated without undue manipulation of the surrounding parts.

(c) The division into stages, as recommended by Horsley, and celerity of execution.

Joseph Fraenkel, J. R. Hunt, George Woolsey, and C. A. Elsberg (Annals of Surgery, September, 1904).

OTITIS MEDIA, CHRONIC SUPPURATIVE.

Chronic otorrhœa is not given the importance that its gravity demands. In all cases the treatment should be based upon the pathological condition present. In addition to proper attention to the nose and naso-pharynx and all minor surgical procedures, appropriate treatment to the middle ear will yield good results in a large percentage of cases. Where caries is limited to the ossicular chain and there are no contra-indications, ossiculectomy should be the operation of selection. Cases presenting symptoms of extension beyond the tympanic cavity should be subjected to the radical operation. J. F. McCaw (Medical News, August 27, 1904).

OTITIS MEDIA, SUPPURATIVE.

In acute cases early and free incision should be made, after which it should be made sure that any further treatment is clearly indicated, for overtreatment is very dangerous. Fluids should never be introduced into the auditory canal unless they are warm. Adenoid tissue should be removed from the pharyngeal vault and from between the pillars of the fauces as soon as it interferes with free respiration during sleep.

In chronic cases patients should be cautioned that treatment must be faithfully carried out for a long time before cure can be effected. The treatment of suppurative ear cases should not be intrusted to the family or friends: if a trained nurse is not available, they should receive personal attention. In acute cases it is essential to keep the patients in bed. T. W. Moore (American Medicine, September 24, 1904).

PARAFFIN AS A COSMETIC REMEDY.

Observations in one hundred reported cases, together with a personal experience of over two years, seem to warrant the author in reaching the following conclusions:—

Paraffin is well adapted for use in prosthesis. In comparison with softer forms, paraffin, with melting point of 110° F., seems to be the ideal substance for subcutaneous injection. In the hands of the experienced operator, paraffin at a melting point of 110° F. is inert. In fact, it seems justifiable to simulate the injected material, histologically, to so much fatty tissue, being frequently permeated and enveloped by minute trabeculæ. Danger is practically *nil*. Those unfortunate cases of necrosis, misplacement, etc., being eliminated by radical surgical and artistic scrutiny.

When cold, sterile, semisolid paraffin, free from water of evaporation and air, is injected into surgically clean tissue, the production of embolus is impossible. One-twentieth body-weight can be injected into a guinea-pig. There is no known danger to life, in the correction of any deformity, however marked. Since many other foreign materials are introduced into the surgery about the head, and since danger of paraffin is practically negative, undue timidity seems unwarranted. The accidents in work with melted vaselin and other liquid materials should not be considered, in the statistics of to-day. The promiscuous puncturing of facial charlatans should have no bearing whatever upon the scientific employment of paraffin. Experiment shows that no absorption whatever of paraffin takes place in the human organism.

Paraffin is equally well adapted for use in children. Four injections, all under 10 years of age, show gratifying and permanent results. As the child matures the presence of the injected material seems to act as stimulus toward increased proliferation of adjacent tis-

sue, so that the growth will be along the line of correction rather than toward deformity. M. D. Ritchie (Laryngoscope, August, 1904).

PELVIC ABSCESS.

When pus exists outside the peritoneal cavity, it should be attacked, when possible, through an extraperitoneal incision. Such abscesses readily heal after incision and drainage. Abscesses of the tube or tube and ovary combined are intractable in healing after simple incision and drainage, and are prone to relapse. By such procedure, the immediate mortality may be lessened, but the morbidity is certainly increased. Total ablation is therefore better surgery.

Whether the pus is sterile or not, drainage should follow operations in which the peritoneum has been soiled with pus. When vaginal incision is practiced, it must be thorough. Mere puncturing or aspirating the abscess is an historical relic of surgical impropriety. A. P. Stoner (American Journal of Obstetrics, September, 1904).

PELVIC URETERAL SHEATH; ITS RELATION TO THE EXTENSION OF CARCINOMA CERVICIS UTERI.

The pelvic portion of the ureter is surrounded by a sheath which is apparently derived from the tissue along or through which the ureter passes and owes its origin to the peristaltic movements of the ureter, thus causing intermittent pressure on its surrounding tissue. In favor of the above it may be said: *(a)* that the sheath as such is absent in the fœtus; *(b)* that in a case of double ureter, in which the ureters were close together, one sheath was common to both; *(c)* that its structure varies with that of the surrounding tissue; *(d)* the ureter deprived of its sheath may form another from the tissue in which it becomes imbedded; *(e)* the sheath is developed best in parts where there is opposition to its contractions, as in the pelvis, while in the abdomen, where it lies in loose adipose and fibrous tissue which offers very little resistance to the contractions of the ureter, a definite sheath is imperfectly formed or absent.

Near the bladder the ureter is reinforced by muscle bundles, some of which apparently come from the bladder, as described by Waldyer, while others are apparently derived from the outer coat of the ureter, as described by Disse. These muscle bundles also form a sheath about the ureter, with which the sheath previously referred to fuses. While the two may be considered different portions of one sheath, on account of their origin and the fact that the lower end of the fibrous sheath apparently encircles the upper end of the other; they should be considered as separate structures.

The formation of a sheath about the abdominal portion of the ureter is very imperfect and in places apparently absent, which may possibly be explained on the ground that the surrounding tissue is loose and on this account offers little resistance to the contractions and expansions of the ureter.

The inside of the sheath is filled with adipose tissue and fine strands of connective tissue in which are imbedded the larger vessels of the periureteral vascular plexuses, and also possibly lymph channels.

While this sheath protects the ureter from the invasion of inflammatory processes and new growths, at the same time the local thickening of the sheath may interfere with the function of the ureter, thus giving rise to hydro-ureter and renal insufficiency and predisposing the kidney to infection, and in cases of ure-

teritis helps form the thickened ureter found in these cases.

Stricture of the lower end of the ureter demonstrates the imperfect formation of this sheath, as where the sheath is well formed expansion of the ureter is restricted, causing a stricture, while above this place the loose tissue (sheath) about the ureter may give way, permitting the tortuous condition and kinking of the ureter sometimes found in these cases: *i.e.*, a hernia of the ureter through its sheath.

The ability of the ureteral sheath to resist the invasion of carcinoma depends more on the nature of the particular growth than any quality of the sheath, for the latter is derived from the surrounding tissue and behaves toward the growth as does the rest of the tissue about it. *(a)* In some cases a marked hypertrophy of the sheath is found, thus temporarily protecting the ureter, and later this hypertrophy may compress the ureter. *(b)* In other cases the ureteral sheath may be invaded with very little or no apparent attempt at hypertrophy, while in one case studied the growth gained access to the inside of the sheath and extended along the ureter within the sheath.

This sheath is of importance in operations in the pelvis, for if the integrity of the sheath is preserved that of the ureter is assured. On the other hand, freeing the ureter from the sheath, unless done with great care, is attended with dangers of ureteral necrosis. Also in ureterovesical implantations the ureteral sheath should be preserved and sutured to the bladder, thus not only protecting the ureter, but, what is also of great importance, the tension of the implantation is relieved. J. A. Sampson (Journal of the American Medical Association, September 10, 1904).

PREGNANCY AND THE PUERPERIUM, HEART AND CIRCULATION IN.

The conclusions arrived at by the authors are that there is not, during pregnancy, any hypertrophy of the left ventricle, nor any special increase in its work. The increase of dullness toward the left is due to the upward displacement of the diaphragm and the consequent displacement of the heart in an upward and outward direction. The comparative outlines before and after labor show a rapid return to the normal position.

The authors were struck by the frequency of an increase in the extension of dullness toward the left in the second and third interspaces and by the frequency of distinct pulsation in the same area. In the absence of any evidence of retraction of the lung, and in view of the fact that the pulsation discovered in this region was distinctly marked, it is evident that this condition of things is ascribable to distension of the conus arteriosus and root of the pulmonary artery. The frequent presence of a systolic murmur most clearly audible in the same area further substantiates this opinion. Moreover, the position of the right border of the heart seemed on the average somewhat too far toward the right, which, with the conditions present at the root of the pulmonary artery, convinced the authors that there is probably during the later months of pregnancy some continuous dilatation of the right ventricle, though this is apparently of very moderate degree. Such a state of affairs can scarcely be regarded as surprising when we reflect that the upward displacement of the diaphragm and pressure upon the lungs must necessarily increase the difficulties of the pulmonary circulation. The belief of the authors in the existence of a dilatation of the right ven-

tricle is, however, based upon observed facts rather than upon theoretical deductions.

The condition of the abdominal recti is important from the point of view of the circulation. In multiparæ separation of the recti materially lessens the tendency to displacement of the diaphragm, and diminishes in a corresponding degree the displacement of the heart during pregnancy. After delivery this diastasis of the recti, however, may occasion a downward displacement of the apex of the heart, and the contrast before and after labor may be quite as pronounced as in primipara, though the first position occupied may not have been far from the normal. Later, if the separation of the muscles is not considerable, and the normal tone of the abdominal walls is regained, a restitution to the normal of the heart and its apex occurs.

Investigations of the blood-pressure made show conclusively that there is no material increase of this pressure before or after labor. During labor notable increase in the blood-pressure was sometimes found, such as has also been observed by others. Alfred Stengel and W. B. Stanton (University of Pennsylvania Medical Bulletin, September, 1904).

PROSTATE, SUPRAPUBIC ENUCLEATION OF THE.

A selection of a mode of operation for the relief of prostatic obstruction must be governed by existing conditions, taking for granted that the patient is in a proper condition to withstand a surgical attack. The first condition is the size of the gland; the second, the structure of the gland; the third, the existing sepsis. It can be hardly questioned that a very large gland can be better and safer removed by a suprapubic prostatectomy, while one of medium size can be left to the personal equation of the operator and his familiarity with the two methods. A gland of a fibrous, flabby, plastic character is best relieved by a perineal prostatectomy. The author, however, is inclined to the belief of Belfield that the combined suprapubic and perineal incision will be the operation of the future. The former, on the one hand, better conserves the safety of the sexual function and power of fecundation, while, on the other hand, the perineal incision will better avert the danger of sepsis. H. O. Walker (International Journal of Surgery, September, 1904).

PUERPERAL SEPSIS, TREATMENT OF.

The most vital factor in the prevention of puerperal fever is the adoption of such rigid asepsis as is customary today in all surgical operations. Almost equally important is the removal of all predisposing causes which may diminish the patient's powers of resistance. Infrequent vaginal examinations during labor, and none at all when a normal condition is apparent from the external examination, tend toward improving prophylaxis.

As suggested by Boldt, from present knowledge, the clinical aspects must be relied on rather than on the bacteriological examination in order to determine the proper treatment. The general treatment should consist of rest, stimulants, and nourishing food. Medical treatment for the severe types of infection should consist of drugs to promote phagocytosis, the use of inunction of unguentum Credé, and hypodermoclysis. No antistreptococcic serum of proven value has yet been discovered. The use of douches, whether vaginal or intrauterine, as a routine, at any time either before or after confinement, tends to pro-

mote the development of sepsis. The only exceptions should be when an attempt is made to cleanse a vagina of a gonorrhœal infection prior to confinement and when used in connection with other treatment for a septic condition already developed.

A sapræmia is best treated by thorough cleansing of the vagina and uterus, by means of the medicated douche, finger, or curette. The course of a pure, uncomplicated streptococcic infection of a severe type is not influenced at all by any surgical procedure whatever. All abscess cavities should be opened freely and as soon as recognized. Vaginal drainage, either alone or combined with abdominal drainage, is indicated as soon as it becomes apparent that the peritoneum has become involved.

A hysterectomy has a limited, but not very clearly defined, field in a few cases. C. E. Taft (Yale Medical Journal, August, 1904).

PULMONARY TUBERCULOSIS, THE CHEST IN.

The measurements of the normal chest up to this time have not been determined with sufficient accuracy to allow of very positive conclusions. The influence of race, age, occupation, and altitude must be considered in determining the normal measures and relations. The chief impression gained from this study is that the chest which is subnormal in its diameters and normal or supernormal in its length is the chest more subject to pulmonary tuberculosis, though whether in many cases the disease liability and the shape of the chest are not both results of the same conditions and not casually connected is an open question. Influences which tend to improve the development of the chest tend also to prevent consumption, and this may account for the relative immunity of the well-developed chests.

The antero-posterior diameter in health may be stated to be about 20.5 centimeters at the level of the nipples; the transverse about 28 centimeters, giving an index of 73. In the early stages of pulmonary tuberculosis the antero-posterior diameter at the level of the fourth costal cartilage is about 19.5 centimeters, the transverse about 27 centimeters, giving an index of 72. In advanced stages the figures are about 19 centimeters and 25 centimeters, and index, 76.

The female chest shows a tendency to a lower index than the male. The chest index is readily changed within certain limits in the individual. The influence of pulmonary tuberculosis has some tendency to reduce the diameters of the chest, and it seems as if it also reduced the length. The progress of the disease probably tends to increase the index, though further data are necessary before this can be confidently stated. There seems to be some tendency for the chest in pulmonary tuberculosis to acquire a larger or smaller index—*i.e.*, to divide into two types: one flat (index, 68 to 70) and one deep and round (index, 78 to 80), but both reduced in size. Dr. Hutchinson's normal index appears to be too low, his tuberculous index too high. For far-advanced cases his tuberculous index is probably correct.

The relation of the diameters (*i.e.*, the index) does not appear to have any prognostic value, as at either extremes there is no tendency in early cases of pulmonary tuberculosis to show an unduly large proportion of extreme indices. The change of index in pulmonary disease is probably not due to emaciation, but to change in bulk of the lungs.

During sanitarium residence there is

marked increase in both expansion and respiratory movement, more striking in advanced than in incipient cases. Lawrason Brown and E. G. Pope (American Journal of the Medical Sciences, October, 1904).

RIGOR MORTIS IN STILLBORN CHILDREN.

Rigor mortis may occur *in utero* and *(a)* may pass off before labor terminates, or *(b)* may occur during and so hinder labor and continue after delivery. In deaths during the later stage of labor, where the child is expelled soon after death, rigor mortis may set in afterward.

In all cases of stillbirth the character of the rigidity is the same, whereas in children that have been born alive the rigidity is that of ordinary rigor mortis, the limbs stiffen in the position in which they may be then lying; in children stillborn the rigidity always takes the same form, the limbs, although lying loose and limp, are drawn up more or less into the position they took in the uterus, and even if the rigor mortis had passed off *in utero* before delivery, there would be evidence by pressure-marks, or the natural tendency of the body and limbs to adopt the intra-uterine position, that this has occurred.

Rigor mortis does not accompany stillbirth always, but where it is not present there is no difficulty in deciding the fact from the signs of decomposition present. The mode of death probably influences the rigidity in stillbirths as it does the rigor mortis of adults, and the only suggestion the author can make is that possibly the rupture of membranes and discharge of liquor amnii may be a factor.

In a case of suspected infanticide, or where the question of live birth comes in, any evidence that the limbs and body have been drawn up while a state of cadaveric rigidity into the shape in which the body is molded *in utero* is a strong evidence of stillbirth. C. H. W. Parkinson (British Medical Journal, September 24, 1904).

SCARLET FEVER, BACTERIOLOGY OF.

Streptococci and staphylococci are to be found in the throat in the vast majority of cases of scarlet fever. It is significant to note that streptococci are present in a very large percentage of apparently healthy throats. Both organisms are undoubtedly frequently concerned in the complications of scarlet fever, but are not to be looked upon as the specific agent.

The diplococcus described by Class as the cause of the disease was found by the authors in but a comparatively small percentage of cases, and they cannot regard this organism as bearing any etiological relationship to the disease.

The interesting findings of Mallory, of protozoalike bodies in the skin of scarlet fever patients, will doubtless stimulate research along these lines. It is quite possible that the failure in the past to discover the contagium vivum of the disease has been due to the fact that almost exclusive search for vegetable parasites has been made. J. F. Schamberg and Nathaniel Gildersleeve (Medicine, September, 1904).

SHOCK.

The writer states that shock is not due to the exhaustion of any one nerve center or paralysis of any one system, but that the function of every organ, tissue, and cell in the body is depressed as the result of a powerful impression on the nervous system which dominates all the functions of life. Experiments performed suggest that an outpouring of lymph into the tissues, in excess of normal, and consequent inspissation of the

blood, is one factor which, added to the lowered vasomotor tone occurring in shock, aids in the lessening of blood-pressure so characteristic of that condition. This loss of fluid by the blood in shock, a state of vital depression but little short of death itself, conforms to the fact long well known that after death fluid passes into the tissues from the blood-vessels. This loss of fluid by the blood and corresponding gain by the tissues as death occurred was sought for and noted in rabbits—as demonstrated by a gain in the specific gravity of the blood and loss in specific gravity of the tissues. The enfeebled action of the heart is largely secondary to the lowered blood-pressure; the temporary rise in blood-pressure produced by an intravenous injection of salt solution restores the force of heart contractions. The wan, pinched features are due to the empty peripheral vessels and feeble circulation; undoubtedly, however, most marked where there has been an excessive fluid loss by both the blood and tissues, as in peritoneal injuries. The lessened secretions are due to the lowered blood-pressure. The feeble circulation and lessened activity of all the organs and general arrest of metabolic processes explain the fall in body temperature. The shallow, slow respiration is in accord with the phenomenon of aërated venous blood. Impaired consciousness is due to the overwhelming nature of the impression on the nerve centers, the feeble circulation augmenting and prolonging this effect. F. P. Vale (Medical Record, August 27, 1904).

SNAKE-VENOM AND THE NERVOUS SYSTEM.

The writers have studied the action of cobra venom on the nervous system of monkeys. They find that the longer the animal lives after the injection, the more advanced are the changes in the ganglion cells. As regards the central nervous system, the venom seems to act chiefly on the ganglion cells, for there are no appearances of degeneration of the myelin or axis cylinders in the cord, medulla, pons, or cortex. There is possibly a slight reaction in the connective tissue elements in the gray matter, for in most of the cases the neurophagen cells seemed more numerous than normal.

Nothing definite was found as to the effect produced upon peripheral nerves. While antivenene probably modifies the action of the venom, still it does not at once stop the chromatolysis going on in the ganglion cells. Lamb and Hunter (Lancet, August 20, 1904).

TUBERCULOSIS AND HEART DISEASE.

In view of the frequency with which tuberculosis of the lungs has been found to be associated with valvular heart disease, the writer is forced to conclude that the latter exerts, if any, but very slight influence upon the former, either as an inhibitive or curative influence, even if satisfactory compensation is maintained. On considering the relative frequency of valvular lesions in general, mitral stenosis does not seem to be less often coincident with tuberculous disease of the lungs than other varieties of heart lesion.

It is doubtful whether smallness of the heart predisposes to pulmonary tuberculosis of the lungs to a greater degree than is explainable by the general systemic underdevelopment and lack of resistance which such individuals often exhibit. It is a fact, however, that small hearts, either as the result of wasting

or hypoplasia, are commonly found at tuberculous autopsies, while large hearts are not often encountered in uncomplicated cases.

Stenosis of the pulmonary orifice seems to favor the development of tuberculosis of the lungs. A very large proportion of these cases die of the latter disease.

Arterial and endocardial thickening is a common result of tuberculous intoxication, but it is doubtful whether this process attains a sufficient degree to produce valvular incompetency, as claimed by Teissier.

Tuberculous endocarditis and myocarditis, particularly the former, occur with considerable rarity, but pericarditis, especially the chronic forms, very frequently owe its existence to the presence of the tubercle bacillus.

Tuberculosis of the aorta is also a finding of considerable rarity; the condition may result in the formation of an aneurism.

The cardiac muscle undergoes various forms of degeneration in pulmonary tuberculosis, fatty and fibroid changes being very common, a fact which explains the signal failure of digitalis and certain other heart stimulants to benefit these cases.

Uncomplicated cases of pulmonary tuberculosis often exhibit such striking differences in resistive power and frequently evince such a remarkable tendency toward recovery, even in seemingly hopeless cases, that only the most absolute evidence should be accepted as proof that either the coincidence of another pathological condition or the administration of a special remedy has conferred a benefit upon the patient. G. W. Norris (American Journal of the Medical Sciences, October, 1904).

TUBERCULOSIS, CALCIUM TREATMENT OF.

Michelazzi (Gazzetta degli Ospedali, vol. xxv, No. 40) restricts his report to his experimental research, not entering on his clinical experiences. He commenced to treat experimental tuberculosis with calcium salts in 1902. All the control animals have died, while only 9 died of the 30 rabbits and guinea-pigs treated with 2 to 3 grams a day of calcium phosphate, mixed with their food, and supplemented by repeated daily injections of limewater. The tubercles in the animals were found more or less calcified or walled off by a fibrous inclosure. The rabbits were not only clinically cured, but the pathological anatomy also demonstrated a cure. Some rabbits were kept alive for eight months, and they were apparently in the best of health. The results were less evident in the guinea-pigs, but still sufficiently promising. A characteristic cirrhosis of the liver was manifest in these animals, and inoculation of other guinea-pigs from their lesions gave positive results. The author thinks that this difference in the results observed in the rabbits and the guinea-pigs may be due to the fact that the former were inoculated with tuberculosis by intravenous injection, the latter by subcutaneous injection into the abdomen. The calcium salts are deposited at the points of inflammation and afford a mechanical stimulus which starts and aids the process of repair, with a probable additional antagonistic action on the tubercle bacillus. (Journal of the American Medical Association, September 17, 1904.)

TYPHOID FEVER, DIFFERENTIAL DIAGNOSIS OF.

There is no single symptom on which alone an early diagnosis of typhoid fever

can be made. It is only by careful consideration of the symptom-complex that a clinical diagnosis can be arrived at. The most trustworthy, as well as the earliest, sign of typhoid fever is the presence in the circulating blood of the bacillus of Eberth. The demonstration of the bacillus of Eberth in the blood is not beyond any fairly well equipped laboratory. The bacillus of Eberth is found in the fæces later than in the blood, but with comparative ease. The presence of the bacillus typhosus in the fæces is of great value as a corroborative sign. W. C. Rucker (Journal of the Association of Military Surgeons, September, 1904).

ULCER OF THE STOMACH DUE TO LESIONS IN THE GASTRIC NERVES.

It has been claimed that injury to the external nerves of the stomach in animals has been followed by ulceration of the mucous membrane. Vedova states that by causing an injury to the cœliac ganglion, or its thoracic roots in dogs he was able to produce ulceration of the wall of the stomach which resembled closely the lesion found in the human subject. Van Jizeren also claims that cutting the vagus below the diaphragm in rabbits was followed by the formation of a chronic peptic ulcer of the stomach. The author criticises these views, and submits the results of his own experiments in dogs and rabbits, where he resected the vagus below the diaphragm, extirpated the cœliac plexus, or did both operations. These attempts were all attended by negative results, and in no instance was there any development or a gastric ulcer or similar lesion. In many animals there was noted an increase in the secretion of hydrochloric acid. The animals were kept under observation for six months. The author concludes that a trophic origin for the round ulcer of the stomach cannot be conceived, and that this lesion is not due to any changes in the external nerve-supply of that organ. He believes, however, that there is a possibility that the nervous system has a certain influence which may act as a predisposing factor, but the processes already outlined are not the only cause which produces an ulcer of the stomach. M. Donati (Deut. Archiv f. klinische Chirurgie, vol. lxxiii, No. 4, 1904).

UNCINARIASIS, BLOOD AND CIRCULATION IN.

Uncinariasis through its extreme anæmia exerts a most marked influence on the heart, causing apparent increase in size (most likely dilatation), heaving pulsations, relative insufficiency, thrill, and murmurs. While these conditions may be accompanied by an accentuation of the pulmonic second sound, nevertheless they rapidly disappear when the cause of anæmia is removed, and by slow degrees the accentuation is likewise obliterated. The murmurs are chiefly aortic, soft and blowing, but are both systolic and diastolic, all of which suggests they may be either hæmic (due to anæmia) or caused by relative insufficiency, result of dilatation.

The fact that the area of heart dullness seems to diminish susceptibility after the relief of the anæmia would suggest a marked dilatation, and this seems forcibly strengthened by observations on the blood-pressure, which went up from 120 to 153 in the first case; from 110 to 140 in the second, and from 104 to 156 in the third.

The blood cell changes are not especially significant other than indicating a marked anæmia. Many more and oft-repeated observations would be necessary to establish a definite relationship be-

tween this anæmia and the number of eosinophiles. No megaloblasts were found in the cases recorded, as had been the rule in previous work. The rise of blood-pressure beginning immediately upon removal of the cause is a safe index to the returning strength of the heart. Even in the most desperate cases rapid improvement may confidently be promised immediately after the removal of the worms. W. G. Harrison (Medical News, October 1, 1904).

VAGUS REFLEX: NEW PHYSICAL AND PROGNOSTIC SIGN IN PULMONARY DISEASE.

From an analysis of the symptoms and conditions as they are developed by the vagus reflex in three hundred and eighty cases the writer draws the following conclusions:—

There is sufficient pathological evidence for believing that the integrity of the vagi is always impaired in pulmonary consumption. The vagus reflex is universally present in active pulmonary consumption, and in the vast majority of cases of this character it is situated on the same side of the body as that on which the lung affection is found.

The vagus reflex is present in about 80 per cent. of healthy people who have a family history of consumption. In healthy people without a family history of consumption the vagus reflex is universally absent, provided there does not exist a family or personal taint of alcoholism, insanity, or some other neurosis.

In the development of the vagus reflex, dizziness, dyspnœa, coughing, sweating, and other symptoms are produced at the same time in about one-sixth of the number of consumptives, while the same is true in about one-third of the number of healthy people whose family history is burdened with consumption.

The intensity of the vagus reflex, or, in other words, the number of symptoms that accompany its development, other than those which manifest themselves locally in the neck, seems to be dependent on the number of deaths that have occurred in the families of consumptives and in those of healthy people.

There is an appreciable difference in the degree of vulnerability to consumption among healthy people below the age of 35 years, between those who have a family history of consumption and a vagus reflex and those who do not have the same, and after the above given age period this difference is eliminated.

The vagus reflex is a valuable sign in the diagnosis and prognosis of pulmonary consumption, for, by projecting the family history of the potential consumptive into the present, it not only foreshadows that which is not otherwise evident to the senses, but becomes an important factor in the prophylaxis and treatment of this disease. T. J. Mays (New York Medical Journal and Philadelphia Medical Journal, September 3, 1904).

VENOUS THROMBOSIS OCCURRING IN THE COURSE OF TYPHOID FEVER.

In 42 cases of typhoid thrombosis the onset occurred almost invariably in the third week or later. Local pain and fever were usually the first symptoms. The fever sometimes preceded the localizing symptoms. In 28.2 per cent. of venous thrombosis occurring in connection with typhoid fever there were chills. In several instances the chill preceded the appearance of localizing symptoms. In the past two years the author has seen in consultation three further cases in which otherwise unaccountable chills during convalescence from typhoid fever

were followed by a complicating thrombosis.

Venous thrombosis in typhoid fever is usually associated with an increase in the number of leucocytes. The extent of the leucocytosis depends apparently in part, at least, upon the extent of the lesion. It may be moderate, but in other instances of considerable extent—over 20,000. In mild cases it may be absent.

The thrombosis is commonest in the lower extremities, especially on the left side. The femoral vein is involved with particular frequency. In the event of a sudden severe pain in the lower part of the abdomen coming on during the latter part of typhoid fever and associated with a leucocytosis the possibility of iliac thrombosis should always be borne in mind.

Venous thrombosis in a lower extremity is always a serious complication of typhoid fever. Although the immediate danger is not great, the after results are often grave. In the thrombosis of the femoral or iliac veins the affected extremity is usually considerably and permanently enlarged and there is usually more or less permanent disability, extensive varices, often resulting in ulceration; marked weakness of the limb; frequent cramps in the muscles, especially at night and after overexertion. In thrombosis of the popliteal or deep veins of the calf alone the permanent changes are much less severe, though the leg always remains larger than the other.

In thrombosis of the femoral vein a greater or less part of the blood from the affected extremity is often carried up by the iliac vein of the opposite side, the current crossing the abdomen through anastomosis in the hypogastrium, resulting in a characteristic triangular area of varicose veins. W. S. Thayer (Medical News, October 1, 1904).

THE AMERICAN MEDICAL SOCIETY FOR THE STUDY OF ALCOHOL AND OTHER NARCOTICS.

The above society was organized June 8, 1904, by the union of the American Association for the Study of Inebriety and the Medical Temperance Association. Both of these societies are composed of physicians interested in the study and treatment of inebriety and the physiological nature and action of alcohol and narcotics in health and disease. The first society was organized in 1870 and has published five volumes of transactions and twenty-seven yearly volumes of the Quarterly Journal of Inebriety, the organ of its association. The second society began in 1891 and has issued three volumes of transactions and for seven years published a Quarterly Bulletin containing the papers read at its meetings. The special object of the union of the two societies is to create greater interest among physicians to study one of the greatest evils of modern times. Its plan of work is to encourage and promote more exact scientific studies of the nature and effects of alcohol in health and disease, particularly of its etiological, physiological, and therapeutic relations. Second, to secure more accurate investigations of the diseases associated or following from the use of alcohol and narcotics. Third, to correct the present empirical treatment of these diseases by secret drugs and so-called specifics and to secure legislation prohibiting the sale of nostrums claiming to be absolute cures and containing dangerous poisons. Fourth, to encourage special legislation for the care, control, and medical treatment of spirit and drug takers.

The alcoholic problem and the diseases which center and spring from it are becoming more prominent and its medical and hygienic importance have assumed such proportions that physicians everywhere are called on for advice and counsel. Public sentiment is turning to medical men for authoritative facts and conclusions to enable them to realize the causes, means of prevention, and cure of this evil. This new society comes to meet

this want by enlisting medical men as members and stimulating new studies and researches from a broader and more scientific point of view. As a medical and hygienic topic the alcoholic problem has an intense personal interest, not only to every physician, but to the public generally in every town and city in the country. This interest demands concentrated efforts through the medium of a society to clear away the present confusion, educate public sentiment, and make medical men the final authority in the consideration of the remedial measures for cure and prevention. For this purpose a most urgent appeal is made to all physicians to assist in making this society the medium and authority for the scientific study of the subject. The secretary, Dr. T. D. Crothers, of Hartford, Conn., will be pleased to give any further information.

SOUTHERN MEDICINE AND GAILLARD'S MEDICAL JOURNAL CONSOLIDATED.

We are advised that with the publication of the October issue Southern Medicine and Gaillard's Medical Journal have been consolidated. We have no doubt that the amalgamation of these excellent periodicals will be regarded with favor by a large number of physicians who have been heretofore given both journals their patronage. We extend to the editor, Dr. William Elwood Fitch, of Savannah, our best wishes for continued success.

Books and Monographs Received.

The editor begs to acknowledge, with thanks, the receipt of the following books and monographs:—

The Doctor's Recreation Series. Charles Wells Moulton, General Editor. Vol. I. The Saalfield Publishing Company, Chicago; Akron, Ohio; New York. 1904.——Annual Report of the Chief Resident Physician of the Municipal Hospital for the Year 1903. 1904.——A Simple Method for the Reduction of Luxations of the Humerus. By Eleanore Boulton, Philadelphia. 1904.——Preliminary Treatment in Minor Gynecological Surgery. By William B. Small, Philadelphia. 1904.——Laryngitis Hypoglottica Acuta. By Charles W. Richardson, Washington, D. C. 1904.——Osteomyelitis of the Temporal and Adjacent Bones of the Skull as a Sequel of Otitis Media Suppurativa. By Charles W. Richardson, Washington, D. C. 1904.——Etiology, Pathology, and Symptomatology of Chronic Suppurative Otitis. By Charles W. Richardson, Washington, D. C. 1903.——Report of Two Cases of Cerebral Abscess, with Recovery. By Charles W. Richardson, Washington, D. C. 1903.——Gonorrhœa in Women. By E. E. Montgomery, Philadelphia. 1903.——Dysmenorrhœa. By E. E. Montgomery, Philadelphia. 1904.——The Theory of Mutation in its Relation to Medicine. By Jonathan Wright, New York City. 1904.——Autoclasis of the Tonsils; an Auxiliary Process of Their Retrogression. By Jonathan Wright, New York. 1904.——Actinomycosis of the Tonsils, with Some Remarks on the Portals of Infection. By Jonathan Wright, New York. 1904.——The Medical Treatment and Management of an Attack of Appendicitis—With a Review of Some of the Literature of the Subject, Both Old and New. By Boyd Cornick, San Angelo, Texas. 1904.——The Injection Treatment of Internal Hæmorrhoids. By C. F. Martin, Philadelphia. 1904.——A Study of the Degenerations and Complications of Fibroid Tumors of the Uterus from the Standpoint of the Treatment of these Growths. By Charles P. Noble, Philadelphia. 1903.——The Treatment of Fibroid Tumors of the Uterus. By Charles P. Noble, Philadelphia. 1904.——Some of the More Unusual Results of Movable Kidney. By Charles P. Noble, Philadelphia. 1904.——Puerperal Eclampsia: Its Ætiology and Treatment. By Hudson D. Bishop, Cleveland, Ohio. 1904.——Clamp and Cautery in Appendicectomy. By Joseph R. Eastman, Indianapolis, Ind. 1904.——The Business Side of a Physician's Life. By H. Booker Mills, Philadelphia. 1904.——Report of a Case of the Invasion of a Fibromyoma of the Uterus by an Adenocarcinoma, which by Metaplasia had Assumed the Appearance of a Squamous-Celled Carcinoma. By C. P. Noble, Philadelphia. 1904.

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THE INTERNAL SECRETIONS IN THEIR RELATIONS TO THE PATHOGENESIS OF LOBAR PNEUMONIA.

(Concluded.)

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A FEW years ago Osler[36] closed a paper on the prognosis of pneumonia with the remark: "The toxæmia outweighs all other elements in the prognosis of pneumonia; to it is due in great part the terrible mortality from this common disease."

On the other hand, A. Wadsworth,[37] in a recent comprehensive review and experimental study of the etiology of this disease concludes that "organisms of low virulence induce evanescent bronchial reactions; more virulent organisms by a *local* infection give rise to the more typical broncho-pneumonic lesions, while organisms of still greater virulence, if confined to the lung, incite diffuse processes of the lobar type." He also refers to the need of "animal susceptibility, both *local* and *systemic*," and to the fact that "the *lung surface acts as a barrier to infection*."

What are the relations between these leading features and the foregoing data concerning the essential conditions underlying infection? The highest mortality, we have seen, is borne by the two extremes of life, infancy and old age, when the state of the organism to which text-books refer as "lowered resistance" is the predisposing factor. That this condition is also brought about by squalor, certain diseases, inebriety, and traumatism is now well known. The evidence adduced to the effect that dust containing the pneumococcus—which Wadsworth characterizes as practically the one species which "ever attains the necessary specialization for the incitement of lobar pneumonia"—can transmit the disease, coincides with the prevailing view that the respiratory tract is the portal of infection. As to the influence of cold as a predisposing agent, its morbid effects have been attributed to the retention of waste products of metabolism by Eisenmann,[38] the impairment of cellular interchanges by Rosenthal,[39] reflex action by Heymann,[40] marked fluctuations of the blood-pressure by Hegglin,[41] Grawitz,[42] and others, the result being "hyperæmia, congestion, transudation, or even hæmorrhage" and structural alteration of the tissue and cellular elements, all especially well marked owing to the anatomical structure of the lung (Wadsworth[43]).

There are two features of the question, however, which none of these factors explain: (1) the concurrence of an unusually dry condition of the atmosphere with increased mortality, and (2) the manner in which ether anæsthesia provokes pneumonia. These two etiological factors appear to me to involve the whole question of pathogenesis, including the condition of the tissues represented by the oft-employed phrase "lowered resistance," where it is capable of proving most harmful, *i.e.*, the lung surface.

We have seen that in Brisbane the highest death-rate from pneumonia had been greatly in excess during a period of marked dryness of the atmosphere. Hardie, who studied this question with the aid of ample material, states that the humidity during the period of highest mortality was only 66 per cent. and the air cold. Ten years before (1886), H. B. Baker,[44] who has been Secretary of the Michigan Board of Health since 1873, had demonstrated the great importance of this feature of the problem and shown—supporting his opinion with a great wealth of illustrative data (including 31,014 reports and 154,500 observations)—that in Michigan there were more cases of pneumonia and deaths from this disease when the air was cold and dry than when it was moist. Other observers have emphasized the same fact. The first table on the following page—one of the many incorporated in Dr. Baker's paper—shows the correlation between a low *absolute* humidity average and an increase in cases of pneumonia.

Ever since Hippocrates taught that "cold, damp air" was the harmful factor this view has been entertained. Baker has shown, however, that it is based on an

Relation of Sickness in Michigan from Pneumonia to the Average Absolute Humidity by Months for a Period of Ten Years, 1877-86. (H. B. Baker.)

Months.	Annual Av.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Sickness from pneumonia . . .	36.5	57.9	63.1	61.1	53.9	39.3	25.1	16.1	13.3	16.7	21.3	33.4	44.8
Average absolute humidity . .	3.44	1.38	1.51	1.81	2.75	3.91	5.27	6.07	5.84	4.98	3.71	2.3	1.75

erroneous interpretation of the actual condition of the atmosphere when it is said to be "cold and damp." Cold air can hold relatively little moisture, because its molecules are close together; warm air, on the other hand, can accommodate considerable, since its molecules are far apart. It takes fewer grains of vapor to the cubic foot, therefore, to saturate cold air than it does warm air. Thus Guyot's tables,[45] based on Regnault's experiments, show that air at zero F. contains per cubic foot (absolute humidity) when saturated with water vapor, $^1/_2$ grain Troy; at 32 degrees it contains 2 grains; at 70 degrees, 8 grains; at 98 degrees, 18.69 grains. During cold weather, therefore, the atmosphere, as stated by Dr. Baker, is "absolutely drier than it is in warm weather, because cold air has so little capacity to hold vapor that moisture is deposited out of the air as fast as its temperature is lowered." We are dealing here, in fact, with a recognized principle of meteorology.

J. M. Anders [46] recently published evidence to the same effect, and very properly remarks that "a moment's reflection affords reasons for believing that it is not the amount of vapor in the air that is the great predisposing cause of lobar pneumonia." He concludes, however, that an apparently close relationship exists between periods of low temperature and the death-rate from pneumonia—in perfect accord with the opinion advanced nearly two decades ago by Baker, when he wrote: "The evidence seems to be conclusive that in some way, directly or indirectly, the sickness from pneumonia is controlled by the temperature of the atmosphere," as graphically shown by him in the following table:—

Relation between Sickness from Pneumonia and the Average Temperature of the Atmosphere in Michigan, by Months for a Period of Eight Years, 1877-84. (H. B. Baker.)

	Average.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Sickness from pneumonia* . .	39.0	62.0	66.0	62 0	56.0	42 0	27.0	18.0	14.0	18.0	23.0	35 0	48.0
Atmospheric temperature† . .	46.74	21.43	25.60	31.04	44 48	56.60	65.54	70.68	68.85	62.05	51.34	35.99	27.25

* Indicating what percentage of all reports received stated the presence of pneumonia then under the observation of the physicians reporting.

† The average temperature is stated in degrees Fahrenheit, and is for groups of several stations in different parts of the State.

If the amount of vapor in the air is not a predisposing cause of pneumonia, we are logically led to eliminate dryness as a morbific factor, inasmuch as it implies an absence of vapor. The low temperature of the air remains alone, therefore, as a

possible predisposing source, and it becomes a question as to whether cold can *per se* so react upon "the barrier to infection," the lung surface, as to increase its vulnerability to pathogenic micro-organisms. This, in turn, however, implicates the existence of some immunizing process on the pulmonary tracts to prevent the local multiplication of virulent bacteria whose toxins give rise to the toxæmia which, as stated by Osler, outweighs all other elements in the prognosis.

What is the nature of this process?

The three prominent theories of immunity so far advanced, Metchnikoff's, Buchner's, and Ehrlich's, have several features in common. One of these is that the destruction of bacteria in the blood-serum is ascribable to a substance which loses its bactericidal properties when heated thirty minutes at a temperature of 55° C. Metchnikoff calls it "cytase"; Buchner, "alexin"; and Ehrlich, "complement." Another is that this bactericidal body is derived from the leucocytes. Metchnikoff believes that it enters the blood-stream when those leucocytes to which he ascribes phagocytic properties are disintegrated; Buchner and his pupils traced it mainly to the oxyphile leucocytes; Ehrlich, though less positive, is also inclined to the belief that his bacteriolysins and hæmolysins are derived from these cells. A third feature in which concordance is discernible is the identity of the germ-destroying agent. While Metchnikoff[47] refers to his cytases as "soluble ferments" which "belong to the *category* of trypsins," Buchner ascribed the bactericidal action of his alexins to a proteolytic enzyme similar to the digestive ferments, and Ehrlich speaks of his complement as being endowed with digestive powers. Briefly, all three theories concur in recognizing that the blood destroys pathogenic organisms by means of a digestive substance ("substances," according to Ehrlich) which loses its activity when heated to 55° C., and that this substance is probably derived from leucocytes.

Elsewhere[48] I have presented evidence to the effect that, as stated by Metchnikoff, this bactericidal substance is a *trypsin*,—a proteolytic ferment as believed by Hankin and Buchner,—but that it is a spleno-pancreatic internal secretion taken up by the leucocytes, and which they can eject under certain conditions, or use for initial digestion in an intracellular process under others. Now, if a trypsin is the bactericidal agent of the body fluids and of the leucocytes, it is also, of course, the defensive constituent of pulmonary fluids. In that case the morbid influence of cold dry air upon the lung surface is readily explained, since, as is well known, the proteolytic activity of trypsin—and therefore its germ-destroying power—is *materially influenced by temperature.* Ehrlich fully recognizes this fact in his side-chain theory. "The basis of the theory," writes Wassermann,[49] "is the fact that poison and counterpoison, toxin and antitoxin, combine in any given quantity. This combination always occurs in definite proportions following the laws of *chemical combination;* and, still following these laws, is *slower at lower temperatures than at higher.*"*

*A number of investigators have opposed Metchnikoff's view that phagocytic leucocytes contain a trypsinlike ferment. If, as I believe, it is primarily a spleno-pancreatic internal secretion, it is endowed with special properties, including *some* only of the characteristics of trypsin. I regard it as the active agent in antitoxin; as such, therefore, it should combine chemically with the toxin in accord with Ehrlich's view, instead of acting as a true ferment. The intracellular digestion of bacteria ingested by phagocytes would also, in that case, be due

The direct connection between the bactericidal and antitoxic action of trypsin and pneumonia is emphasized from various directions. Thus, Foster,[50] referring to the proteolytic action of this enzyme, says that "it is favored by increase of temperature up to 40° C. (104° F.) or thereabouts, and hindered by low temperature"; Norris,[16] on the one hand, in the series of 500 cases treated at the Pennsylvania Hospital, to which reference has been made, found that the greatest number of recoveries occurred among the cases in which the temperature ranged between 103° and 105° F., while the highest mortality occurred in cases in which it fluctuated between 99° and 101° F. Again, while Metchnikoff[51] states that his tryptic cytase "only acts in the presence of salts," that "when relieved of its salts by dialysis the serum loses its hæmolytic power," and that "as soon as these salts are restored to it this power reappears," we know that the chlorides disappear from the urine and accumulate in the lungs, as shown by Lionel S. Beale many years ago,[52] to enhance therein, doubtless, the bactericidal and antitoxic efficiency of the protective constituents of the pulmonary fluids.

On the whole, the teachings of modern research appear to me to sustain Baker when he said in 1888: "The evidence seems to be conclusive that, both as regards those effects of the inhalation of air unusually cold which are due to temperature alone, and those effects which are due to the abstraction of vapor of water from the lungs and air-passages by the inhalation of cold air (which by reason of a well-known natural law is always dry air) the tendency of both these effects is toward the exudation, not only of the nonvolatile salts of the blood, but also of the albuminous constituents of the blood; in other words, toward inflammation of the lungs and air-passages." As interpreted from my standpoint, however, the exudation, the salts, the immigration of leucocytes, etc., all the landmarks of "inflammation" in a word, constitute the inherent parts of an active process having for its purpose to increase the protective efficiency of the trypsin, whether we call this proteolytic body a "cytase," with Metchnikoff; an "alexin," with Buchner; or a "complement," with Ehrlich.

An important feature of the problem requires elucidation, however. A tryptic constituent of the plasma being accepted as the bactericidal and antitoxic agent,

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to a chemical process. I have not only advanced this view in the first volume of "Internal Secretions," etc. (emphasizing the rôle of the cellular nuclein, a body rich in phosphorus, and of blood-salts in the process), but at the recent meeting of the British Medical Association (*vide* British Medical Journal, September 10, 1904), the President of the Section of Pathology, Dr. James Ritchie, said: "I think it will be well for us to keep a mind open for the possibility that part of the increased metabolism may be the expression of work done by cells actively engaged in operating on the invading bacteria. That this is all the more likely is indicated if we correlate the known facts regarding the *increased excretion of potassium and phosphorus* during fever with the increased activity which can be microscopically observed *in the colorless cells* of the blood which contain *these elements in abundance.*" The first stage of the process may be accompanied by hydrolysis, but chemical combinations are evident, and to expect cells which are the seat of such reactions to prove hæmolytic and bactericidal experimentally, especially after submitting them to the action of various extractives, liquid air, grinding in glass powder, etc., is obviously futile. Hence, doubtless the discordant results recorded by equally competent observers and the existing "extraordinary diversity of opinion" referred to by another speaker, Dr. William Bulloch, in respect to the origin of these bactericidal substances.—S.

when pneumonia is present, can we say that it is also present in normal serum? The presence of proteolytic enzymes in the serum was demonstrated last year by Delezenne and Pozerski,[53] and their results have been confirmed by Hedin.[54] The latter investigator states, among other facts, that "the serum of the ox contains a weak *proteolytic* enzyme, which acts in an *alkaline* medium" and that "it is destroyed by *heating to 55 degrees* [C.] *for half an hour.*" He closes his paper with the statement: "As to the origin of the enzyme, nothing can be stated at present. Yet it should be remembered that a similar enzyme has been found *in the leucocytes of the spleen,* and it therefore does not seem to be impossible that the serum protease should be derived from the leucocytes in the blood or in other organs either by a destructive process, which might set the enzyme free or by an act of secretion," the latter referring doubtless to secretion by the leucocytes.

I may recall in this connection that it was before any of the above experiments had been published that I advanced the view that the proteolytic enzyme referred to was, in the main, a spleno-pancreatic internal secretion. Since then A. E. Wright[55] has ascribed, as the result of experiments, the germ-destroying power of the blood to an internal secretion; Gruber and von Pirquet[56] have likewise been led to conclude that the blood's specific antibodies (bacteriolysins, hæmolysins, etc.) have the character of an internal secretion.

The germ-destroying agent being present in normal blood-serum, and its efficiency being impaired by cold, the pathogenic action of cold air (the molecules of which are necessarily condensed) is readily accounted for. Even allowing for the rise of temperature which its passage through the upper respiratory tract insures, a difference of three or four degrees so materially influences the bactericidal power of trypsin that its morbid influence is obvious. Especially does the possibility of such a result assert itself when we consider that in some localities the atmospheric temperature varies at times within a few hours 30° to 40° F. and more.

The manner in which ether anæsthesia occasionally causes pneumonia furnishes additional evidence to this effect. By pouring a few drops of ether on the hand, the sensation it will evoke will plainly show what a rapid abstraction of heat will do. This effect of cold on the lung surface means, we have seen, impairment of tryptic activity; and we know that blood-serum is an excellent culture medium when its bacteriolytic activity is in abeyance. As pathogenic micro-organisms multiply with great rapidity, the pathological process is soon started and the fight for autopreservation begins. Phagocytes, trypsin, various blood-constituents that enhance the action of this germ-destroying enzyme, salts, etc., literally pour into the exposed lung area: and upon the power of the body to sustain the fight depends whether its life will be preserved or not. The ever-increasing death-rate of pneumonia—105,971 in the United States alone during 1900—indicates the lethal power of the germ with which the body has to contend in this disease.

But why do not all those who reside in countries where much cold prevails, or where wide temperature fluctuations frequently occur, suffer from pneumonia? That they do not is due to what appears to me as one of the most beautiful provisions of Nature calculated to protect the organism (though overlooked so far as a prophylactic process), *i.e.,* the fact discovered by Lavoisier and Séguin, in 1789, that in warm-blooded animals, including man, a fall of the temperature of the air inhaled

increases the intake of oxygen. This also explains, it seems to me, how cold air may become a therapeutic agent, as, for instance, in the out-of-door treatment of pulmonary tuberculosis.

Lavoisier and Séguin found that a man at rest absorbed in an hour 34.49 grams of oxygen when the air was 32.5° C., and nearly 4 grams more,—*i.e.*, 38.31 grams,—when the temperature was 15° C. Pembrey,[57] who refers to these and other investigations (by Colasanti, Finkler, Oddi, and others), states that "the general result of this work is that the intake of oxygen and the output of carbon dioxide *increase* with a *fall* and *decrease* with a *rise* of external temperature." We not only have, therefore, evidence to the effect that more oxygen is used during cold weather, but, inasmuch as more carbon dioxide is produced, we have proof that more *heat energy* is liberated, and that the efficiency of the bactericidal and antitoxic properties of the body fluids, including those of the entire respiratory tract, is increased in proportion.

Still, why does anyone acquire pneumonia with so perfect a system to protect the organism? Physiological chemistry also affords, it seems to me, an answer to this question. Not *all* men are able to absorb an excess of oxygen. Loewy [58] found that "out of 55 experiments, the oxygen absorbed was increased above 5 per cent. in 26 cases, unaltered in 20, and diminished in 9." In the former the oxygen absorption varied from 5 to 90.8 per cent., the output of carbon dioxide following the absorption of oxygen. In view of these results, therefore, the protective process could not have manifested itself, and these subjects were vulnerable to infection. Still, why did the protective process not manifest itself? A suggestive feature of Loewy's experiments in this connection was that the greatest increase occurred in men who *shivered* or who satisfied the *impulse* to move about, while the respiratory exchanges failed to increase or were reduced in those who willfully prevented shivering and remained quiescent. Loewy concluded that "the regulator of the temperature in a man exposed to moderate cold is the skin" (Pembrey),—a view which coincides with observations in other directions. In other words, the skin—and I may add the nasal mucous membrane—when exposed to cold transmit nervous impulses to deeper structures which are capable of increasing the activity of the oxidation processes throughout the entire body, *impel* to muscular activity and shivering, to further increase the production of heat, and, thereby, the efficiency of the defensive resources on the lung surface. It is among those who are unable to thus react that pneumonia finds its victims—provided specific pathogenic organisms be present in the respiratory tract.

This explains, it seems to me, *how* the barriers to infection are opened. There remains, however, quite as important a feature of the problem unaccounted for,—*i.e.*, the underlying cause of vulnerability. *Why* is a man unable to react to the peripheral excitation of cold and thus to enhance the activity of his oxidation processes?

I have submitted elsewhere[59] the reasons and the experimental data which have led me to conclude that *the functions of the pituitary body include that of protecting the organism against disease* when poisons of any kind threaten its integrity, the fundamental mechanism of the process being that "the thyroid gland, the anterior pituitary body, and the adrenals are functionally interdependent and con-

stitute a system, the adrenal system, which has for its purpose to sustain *physiological oxidation* and the metabolic activity of all tissues." Much work done, and all data bearing upon the subject that have appeared in literature since, have only served to sustain this conclusion. Referring the reader to the various publications in which some of the evidence so far collected has been presented,[60] [61] I will merely recall that, as indicated by my investigations, (1) the pituitary body governs the functional activity of the adrenals, the secretory fibers reaching the latter by way of the tegmentum, the upper part of the spinal cord, the thoracic portion of the sympathetic chain of ganglia, and the greater splanchnic nerves; and (2) that the secretion of the adrenals, which (being poured into the inferior vena cava) necessarily passes up to the heart and thence into the lungs, forms, on being exposed to the air in the alveoli, an *oxidizing substance.* This body, which I have termed *adrenoxin,* presents all the properties of Ehrlich's "immune body" or "amboceptor," Bordet's "sensitizing substance," etc.

Now, all the investigators who have given the question of immunity so much luster in recent years—Metchnikoff, Bordet, Ehrlich, Morgenroth, Zimmermann, and others—are in accord as to the fact that it is this substance which enables the complement (the trypsinlike agent in the blood) to destroy wornout blood-cells, bacteria, etc. The complement being endowed, according to Ehrlich, with digestive powers, the immune body brings it into contact with the pathogenic elements, and these are dissolved. Yet, its chemical composition is admittedly unknown, and the process involved—beyond the fact that it includes a chemical reaction—likewise. When, however, the immune body is considered, in the light of my views, as adrenoxin,—*i.e.,* as an organic compound capable of yielding its oxygen to cellular elements,—its mode of action is readily explained, viz.: As the protoplasm of all cells, bacteria, etc., contains phosphorus among its other constituents, contact between these *phosphorus*-laden cellular elements and the *oxygen*-laden adrenoxin in the blood-plasma entails as a prominent result (reducing the reaction to its simplest expression) the conversion of chemical energy into *heat energy*—the identical factor which, we have seen, endows trypsin with its bactericidal activity.

The deadly products of bacteria, their toxins, are likewise destroyed on the surface of the lung. It is in this connection that leucocytes, in the light of data I have submitted[62] and in addition to their rôle as phagocytes, play a most important part in the protection of the organism, viz.: they supply *granules rich in phosphorus* (the end-products, as interpreted from my standpoint, of the intracellular process in which the ingested substances, trypsin, nuclein, salts, etc., take part) to the serum, to carry on therein the heat-producing process just outlined, thus transforming the toxins (and doubtless bacteria likewise) into *useful products.* This process includes, of course, the formation of wastes.

In the lungs the protective process must be particularly active if, as stated, it is here that adrenoxin is formed. Indeed, it is the air-cells themselves that the adrenal secretion must reach in order to take up the air's oxygen, for which, as is well known, it has a marked affinity. It is on a level with the air-cells, therefore, that the blood fluids are richest in oxygen, and that with aid of the heat energy due to the reaction between the phosphorus of the bacterial protoplasm or the leucocytic *oxyphile* granules the bactericidal and antitoxic properties of the protective trypsin

are raised to their highest efficiency. Briefly, it is at *"the barrier of infection"* that Nature has placed her most potent means of defense.

It now seems possible to state *why* a man may be unable to react to the peripheral excitation of cold and thus raise reflexly the activity of his oxidation processes and protect himself against pulmonary infection. The pituitary body as the governing center of all oxidation processes, as shown by both experimental removal and excitation and considerable clinical evidence, is necessarily a highly organized nervous organ—a fact emphasized by the histological labors of Lloyd Andriezen, Ramon y Cajal, and Berkley, the physiological experiments of Cyon, Masay, and others. Indeed, Cyon[63] found that after removal of the pituitary body, the marked nasal reflex effects, sneezing, coughing, etc., caused by smelling volatile irritants,—ammonia, for instance,—could no longer be produced.

Directly bearing upon the question in point, however, are the sensory phenomena observed in cases of tumor of the pituitary and acromegaly. Very severe headache of a neuralgic type is commonly observed in acromegaly. It is usually limited to the head, but may extend over the entire body, as in a case reported by Hymanson,[64] or a part thereof, as in one observed by Pirie,[65] who specifies "the face, chest, back, and loins." Rosenhaupt[66] found that the skin of the face was hypersensitive. In one of M. Allen Starr's cases[67] the pain was agonizing, and was constant over the forehead and back of the eyes. In another instance, recorded by O. T. Osborne,[68] the pain is stated by him to have been "directly over the pituitary body," while the autopsy revealed "a plate of bone making pressure at this very point."

So much for excessive sensibility observed in diseases of the pituitary body: but *diminished* sensibility is likewise present in many cases. Paræsthesia of the lower extremities and back, for example, was observed by Pearce Bailey[69] in a case of tumor of the pituitary in which this organ was found, after death, to have been the seat of an extensive hæmorrhage. In his case of acromegaly Pirie noted "shooting pains in combination with paræsthesia, tingling, and *numbness* of the arms and legs" and "a remarkable perversion of thermic sensibility" in various large areas of the body, "the patient having *no sensation of heat* in these organs."

The meaning of all this is obvious: The pituitary body not only governs the oxidation processes, but it is also the body's chief nerve-center—as stated by me nearly two years ago, in this journal and elsewhere.[48] Under these conditions need we ask which organ becomes weakened by all the debilitating influences of environment reviewed at the beginning of this article? It seems plain that "natural," "acquired," and "inherited" susceptibility or predisposition to disease must represent a corresponding inability of the pituitary body to adequately sustain oxidation,—*i.e.*, life's processes,—thus accounting for the "lowered vitality," "lowered resistance," the "liability to infection," etc., to which authors refer so frequently. And inasmuch as impairment of the pituitary body's functions can inhibit cutaneous sensibility, and this sensibility in turn is the intermediary through which the activity of the protective processes is enhanced, are we not brought to conclude that a man's inability to react, to protect his otherwise normal, or apparently normal, organism, under the exciting influence of external cold, is due primarily to im-

paired functional activity of the pituitary body, whether this condition be inherited or acquired?

Obviously, pneumonia is but one of many infections—including tuberculosis—in which the principles embodied in this paper are applicable. If, as I believe, the internal secretions protect the body against disease, it is evident that they carry on this function as an inherent feature of their primary rôle in the organism,—*i.e.*, to sustain the activity of the vital processes. It follows, therefore, that vulnerability to infection means a depraved condition of the organs which produce these internal secretions, the adrenals, the thyroid, the pancreas, and the spleen, and particularly of the two great, though diminutive, structures which govern their functions, the anterior and posterior pituitary bodies.

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APPENDICITIS, WHEN TO OPERATE FOR.

The safest and best time to operate for appendicitis is during the interval. The very early operation in the great majority of cases is the same as the interval operation. If all cases were operated early or during the interval there would be practically no mortality, if the operations were done by experienced surgeons.

When cases are not seen until late, or refuse operation, the Ochsner treatment should be given. If, however, the patient gradually or rapidly gets worse,

operation should be urged and such operation advised as will give the patient the best chance for his life at the time.

It is a serious reflection on the doctor who is caught with a moribund patient on his hands without having advised early operation.

In view of the fact that the mortality of late cases is from 14 to 20 per cent., and that the mortality of interval cases is from $^1/_5$ to $^1/_{19}$ per cent., it is self-evident that the interval operation should be the operation of choice. S. C. Stremmel (New York Medical Journal and Philadelphia Medical Journal, October 15, 1904).

ASTHMA AND ITS RELATION TO ENVIRONMENT.

The author states that asthma is not a disease, but a symptom. It is a part of a vicious cycle: an abnormal biochemical and complex pathological process. It originates usually in the intestinal canal through a long-standing indigestion, and toxæmia with faulty absorption and metabolism. This produces a toxic or lymphogenous chyle that generates an unstable blood, characterized by its extremely varied numerous and alarming paroxysmal morphological changes. These often alternate between lymphocytosis, an intestinal toxæmic leucocytosis or anæmatosis, accompanied anatomically by a hyperplasia of the lymphatic and glandular structures and clinically by a most agonizing dyspnœa. The nerve-muscle spasm theory is now exploded. The anatomical structure of the air-tubes disproves this, as they are composed of bonelike rings so constructed that no muscle contained in them could spasmodically contract in any way to interfere with ingress or egress of air. This is true of all the respiratory tract except the vocal muscles, and these never do except in laryngismus stridulus.

Asthma is not a phantom disease produced instantaneously by smells, etc., but is a well-defined pathological process that has been gradually developing for months, years, or generations. The asthmatic patient is always loaded for an attack. Lymphocytic and toxic leucocytic asthmatics with their unstable and rapidly disintegrating blood, their enlarged mucous glands, and their relaxed blood and lymph capillaries in one class and the anæmic asthmatic and his impoverished blood in the other, produce a variety of conditions that individualize each asthmatic and render him susceptible to a certain environment. Some environments explode this pathologically charged machine into an asthmatic manifestation or encourage it when already exploded; other environments retard the explosion or quell it when it is already in action. As a simple example of this, the author calls attention to the common occurrence in the histories of all asthmatics, namely: when a bad day may be followed by a comfortable one, this being due to atmospheric conditions frequently. Dust acts in causing an asthmatic attack by irritating enlarged glands, but it is of minor importance, as it is only an aggravator, and not a cause.

Concerning seasonal changes, the fact that winter attacks are as frequent as those of other seasons and the occasional occurrence of attacks in midocean argue against the pollen theory. The fact that, in the asthmatic, the air tubes are the dumping ground of the toxic blood is the factor in determining the location of the symptoms of the general diseased condition.

In the treatment of asthma the author considered out-of-door life, in a

high altitude, free from excess of moisture, and having an abundance of sunshine, as of first importance. This, however, should be in connection with attention to improvement in the intestinal disturbance. G. N. Jack (Proceedings of the New York State Medical Association; Medical News, October 22, 1904).

ATHLETICS, THE USE AND ABUSE OF.

Athletics may be for good or evil and in the same manner as a two-edged sword. The prime object in athletics is improvement of the general health. Sir Michael Foster has said that health, like happiness, does not exist. Each has a goal or limit which, while seemingly attainable, eludes perfect possession. He said the body consists of a number of mechanisms which have the closest and most exact relations, and as they approximate to harmony there is health, but when disordered there is ill health.

To obtain health muscle building is not a necessity. One cannot judge of a person's health by the size and hardness of the muscles. The converse may be true. To obtain health one must not be in a perfectly trained condition, owing to the effects of severe training on the nervous system. There is no evidence to prove that athletics and muscle building improve the constitution. One should always keep in mind the fact that built up or hypertrophied muscle has a tendency to degenerate. The heart, being a muscular organ, shares in this tendency.

In regard to the moral side of the question it remains to be proven that athletics *per se* corrupt the morals. Dr. F. R. Sturgis is confident that athletics improve the morals of a community. He has seen cases of masturbation cured by athletics.

Although the evidence for and against athletics is contradictory, the whole subject may be summed up by stating that athletics are beneficial when properly and judiciously applied and very injurious when the precautions mentioned are ignored or carelessly regarded. R. E. Coughlin (Medical Record, September 24, 1904).

BLADDER, IRRITABLE.

As the science of medicine grows older the use of such general terms as "irritable bladder" becomes less and less common on account of the fact that the pathological conditions underlying such symptoms become gradually known, and the use of the symptom as a disease name ceases. At first sight irritable bladder as a symptom-complex seems to belong to the class of diseases which have disappeared in the manner above mentioned, but a recent study by Hirsch shows that, although in many instances this condition is merely a symptom of other diseases, there are cases in which it cannot be explained in this way.

According to Hirsch, cases which are described under the head of irritable bladder should have as their predominating symptoms frequency of urination with clear urine and a bladder which appears normal to the cystoscope. Hirsch admits that the number of such cases has been reduced since the cystoscope came into more general use, but he shows by a review of the literature that they still exist. The symptoms in these cases vary with the severity of the case. In the mild cases the predominant symptom is an increase in the frequency and the intensity of the desire to urinate. The patient may urinate as often as every fifteen minutes, or rarely as often as every five

minutes. This urinary urgency may be present in the waking hours only, or may persist also during the sleeping hours. In more severe cases there is added an actual urinary distress, by which is meant an absolute necessity to pass urine when the desire appears. In some cases this results in wetting the clothes, in others there is a spasm of the sphincter with temporary suppression which may have to be relieved by the catheter. In the very severe cases actual pain, in the form of the so-called vesical colic, may be present, and may radiate from its original site in the bladder to the genitals or the intestines, or even to the abdominal wall in the neighborhood. Associated with the strictly vesical symptoms we find in the more severe cases symptoms referable to the intestines, and also symptoms on the part of the general system. The intestinal symptoms, readily explained by the nervous connection between the bladder and the intestines, take the form of a desire to pass fæces coincident with the urinary desire, or of a nervous diarrhœa or constipation. The general symptoms may occur during the attack in the form of cold sweats, shivering, vomiting, and pallor, or may persist the whole time, and are then mental and take the form of mental depression or hypochondria. The sole objective symptom in the majority of these cases is a hyperæsthesia of the bladder wall, which is especially apt to involve the fundus or the neck of the bladder. This hyperæsthesia may occur merely as an increase in the normal sensibility to tension or as an abnormal sensibility to pressure; in the latter case this sensibility may be made manifest by the effects of hardened fæces in the rectum, or may be first detected by the physical examination made by the physician.

The urine in this condition may in many instances show no abnormality, the reaction, quantity, and physical and chemical characteristics being unchanged. In some cases characteristics are present which render the urine more irritating, such as hyperacidity, concentration, excess of phosphates or oxalates, or the presence of sugar. Some authors have claimed, too, that the consumption of alcoholic beverages, especially those which contain carbonic acid gas, may lead to the elimination of irritating substances. In long-continued cases of irritable bladder the quantity of urine may be demonstrably increased.

The main underlying condition in all cases, according to Hirsch, is hyperæsthesia of the bladder wall, but just what leads to this hyperæsthesia is by no means apparent. Numerous cystoscopic examinations, and a few autopsies, have shown that pathologically cases of this condition can be divided into two groups: those which show local or general hyperæmia of the bladder wall. The first group of cases is, in all probability, purely nervous in character. In the second group the hyperæmia seems to belong with the so-called noninflammatory hyperæmias, or at any rate is not due to inflammatory changes which can be detected. As would be expected, the nervous form is much influenced by psychical disturbances, while the hyperæmic form is influenced by any factor causing an increased blood-supply to the pelvic organs. The prognosis of this condition is bad, especially in the more severe forms, and the fact that the treatment is unsatisfactory is well borne out by the two or three pages of remedies which Hirsch publishes. It seems likely that future work may bring out the true factor underlying this con-

dition, but for the present it appears that we are still justified in classing certain cases as "irritable bladder." Editorial (Journal of the American Medical Association, October 29, 1904).

CIRRHOSIS OF THE LIVER.

The writer holds that cirrhosis of the liver is due to a toxæmia of intestinal origin. Its treatment in the early stages consists in regulating the diet and stimulating the liver to increased activity. This is best done by such drugs as iodide of potassium, biniodide of mercury, sodium salicylate, etc. Early diagnosis of the disease is important, but not easy. Beginning cirrhosis of the liver may be strongly suspected if, with irritability of temper, mental depression, insomnia, mental slowness, various nervous symptoms, the result of the toxæmia, there is general decline of health; icteroid discoloration of the skin; feeling of weight or vague discomfort in the hypochondrium; loss of or capricious appetite; irregularity of the bowels; a broad, flabby, coated tongue; a foul breath; loss of weight; a muddy, leaden complexion, with a permanent dilatation of the cutaneous capillaries; a true telangiectasia in various parts of the body, especially in the face. Hubert Richardson (Medical Record, October 8, 1904).

COLD ABSCESSES, TREATMENT OF.

The early recognition of cold abscesses will enable one to dissipate or to nip them in the bud. When they are present at the time the cases come under observation they should be treated with indifference so long as they do not interfere with the proper adjustment of good protection apparatus. If they are in the way, or if they show a disposition to burrow and encroach on parts that it is desirable to keep free from such invasion, aspiration should be resorted to and cultures made in order to determine their virulency. If aspiration fails, incisions under rigid asepsis, large enough only to permit evacuation of the contents, should be relied on, and the introduction of chemicals should be refrained from. The wound should be closed by suture under the same rigid asepsis. When the abscess lies directly over a bone focus that can be easily reached, the incision should be made large enough to remove the focus, and at the same time permit removal by curette or scissors of the lining of the sac and all necrotic tissue contiguous thereto. It should then be closed aseptically, employing drainage for not over forty-eight hours. If longer drainage is demanded, means should be devised by which asepsis in dressings may be continued indefinitely, and a mixed infection looked on as a calamity. Sinuses should be well drained, the foci on which they depend should be treated if involving joints by perfect and long-continued immobilization, with due regard to fresh air and a high state of nutrition. V. P. Gibney (Journal of the American Medical Association, October 29, 1904).

CONSTIPATION, OLIVE OIL INJECTIONS IN.

In suitable cases and a proper technique for the injections, olive oil is a most useful remedy in constipation. Results of a gratifying nature follow in chronic colitis, constipation associated with spasm of the bowel, as in neurasthenia, and in atony of the intestine, here combined with the use of electricity. From 3 to 10 ounces of oil should be injected at bedtime and retained

over night. It should be slowly introduced by the force of gravity. A glass funnel hung in a metal frame and connected by a rubber tube with a nozzle of large bore and well-rounded tip is preferred by the author. A spring clip regulates the flow. The amount at first should be restricted to 5 or 6 ounces, but this can gradually be doubled. After a while the injections can be given on alternate nights only. G. Herschell (Lancet, October 1, 1904).

CROUP DUE TO STAPHYLOCOCCUS.

The winter epidemics of tonsillitis and sore throat in children at times give rise to laryngeal complications. This condition is always serious owing to the ease with which the juvenile throat may be obstructed. Individual predisposition to laryngeal complications is quite probable. The staphylococcus, a common denizen of the throat, may, under favorable conditions, give rise to grave symptoms, as exemplified in cases quoted.

The rapidity of onset and severity of symptoms may at times suggest diphtheria. A reliable bacteriological examination of the throat is prerequisite. Antitoxin, although to be used in doubtful cases, will be of no service in cases in which the Klebs-Loeffler organism is not the causative factor. The above may be taken as examples of cases at times diagnosed as diphtheria in which no microscopical examination is made. Moreover, the failures of antitoxin are often credited to such cases. The author emphasizes the importance of a careful analysis of each, basing the diagnosis on both clinical and bacteriological evidence. F. P. Anzinger (American Journal of the Medical Sciences, November, 1904).

DIPHTHERIA, HEART COMPLICATIONS IN.

From a study of 946 cases the author especially emphasizes the great frequency of heart murmurs and of irregularity of the pulse. The prognosis does not depend on the mere presence of these signs, but upon the severity of the infection, the length of time without treatment, the rate and degree of irregularity of the pulse, and the presence of the graver signs of cardiac disturbance. Moderate disturbance of the heart is very common; severe complications are infrequent.

Frequent examinations of the heart are necessary to really determine its condition, because of the marked changes in rhythm from one hour to the next. Gallop rhythm, late vomiting, and epigastric pain and tenderness are important as danger signals of severe heart complications. The association of late vomiting with gallop rhythm renders the outlook almost hopeless. Antitoxin does not affect the heart unfavorably, but, on the other hand, its early use prevents the appearance of grave heart complications.

Frequent examination of the heart and pulse in the second and third week of the illness are necessary, that being the time when severe heart complications most frequently occur.

Broncho-pneumonia is a more frequent fatal complication of diphtheria than heart disease; sudden death from heart disease is very rare when patients are kept in bed for a proper period. Prolonged rest in bed is necessary in all severe cases; it is not necessary to keep all patients in bed who have cardiac murmurs and a pulse which is somewhat irregular and increased in rate. One should be governed by the stage of the illness and the patient's general condition. If no serious heart trouble has

developed within four weeks the patients are usually safe from this complication. Heart murmurs and irregularity are of long duration in many cases, and make it necessary to watch the condition of the heart long after convalescence in all severe cases. F. W. White and H. H. Smith (Boston Medical and Surgical Journal, October 20, 1904).

ENDOCARDITIS, MALIGNANT.

Malignant endocarditis is a disease of bacterial origin; it differs from single acute endocarditis in the extent of endocardial inflammation and tissue necrosis; in the fact that the right heart is more often attacked; in the more frequent embolic processes which are septic in character. Micro-organisms are found in the blood during life, in the emboli, and on the heart valves after death. There is nothing in the clinical appearance distinctive of any particular variety of germ causing it.

Primary cases are rare, though they do exist; most cases, however, accompany rheumatism, septicæmia, the acute infectious diseases, or are ingrafted upon an old endocarditis. Almost all are fatal: the ones due to severe infection in a few days; the septic ones in a few weeks. The first variety have a leucocytosis of 15,000 or over, the latter usually below that number, some being very slight. Emboli and hæmorrhages are of frequent occurrence, and may be fatal in their results. The urine usually shows evidence of nephritis; it may contain blood and pus from hæmorrhage or infarct.

Treatment is usually unavailing, excepting the serum therapy, which is of uncertain value. Infants and young children seem to be almost exempt from the disease. M. H. Sicard (American Journal of the Medical Sciences, November, 1904).

EXOPHTHALMOS, MECHANISM OF.

Obstruction to the outflow of blood from the veins of the orbit produces at once exophthalmos, which is relieved by the establishment of a collateral circulation. This process, however, is completed so slowly that in the meantime the orbital tissues as well as the tissue of the face become very œdematous, thus adding to the exophthalmos.

Entirely independent of any circulatory changes is the exophthalmos produced directly by the stimulation of the cervical sympathetic nerve. This protrusion is due to the peristaltic contraction of the orbital muscle. W. G. MacCallum and W. B. Cornell (Medical News, October 15, 1904).

EYEBALL, OPERATIONS UPON THE, IN THE PRESENCE OF AN INFECTED CONJUNCTIVAL SAC.

A careful microscopical and bacteriological examination should be made of the contents of the conjunctival sac in every suspected case, carrying the examination as far as the cultivation of the bacteria in a proper medium and the subsequent inoculation of the germs. If toxic germs are found in great numbers, no matter what their varieties, no operation on the eyeball should be undertaken until the germs have disappeared and the conjunctival sac has been rendered as sterile as it is possible to make it.

If there be suppurative disease of the lacrymal passages, whether of canaliculi, sac, or nasal duct, all operations upon the eyeball are positively contra-indicated. The lacrymal sac must be excised, and the lacrymal puncta must be obliterated by the galvanocautery, be-

fore any operation on the eyeball is undertaken. In the case of a catarrhal dacryocystitis or of mucocele of the sac, both canaliculi should be incised, and the sac injected daily with an antiseptic astringent solution, and free irrigation through the nasal duct carried out until all secretion has ceased. Even in cases of great urgency, as, for example, acute inflammatory glaucoma, the writer would not feel himself justified in modifying the above statement.

If the secretion of the conjunctival sac on examination is found to be infected, but the bacteria are few in number and of slight toxic variety, operations may be done on the eyeball when necessary, but these eyes should be opened and examined twice in the twenty-four hours, and the conjunctival sac gently irrigated with warm normal salt solution, or warm sterilized boric acid solution, and then the eye should be immediately rebandaged.

In operating upon the eyeball in the presence of an apparently normal, sterile conjunctival sac, the following steps should be taken: The forehead, eyebrows, temple, cheek, bridge of the nose, and external surface of the lid should be carefully cleansed with hot water and soap, and dried with aseptic cotton pads. The margins of the lids should be carefully, but gently, rubbed with sterilized moist cotton pads, and simultaneously irrigated with a warm sterilized physiological salt solution. Careful irrigation of the conjunctival sac with the same sterilized normal salt solution, and then closing the lids with a moist sterilized cotton pad. The lids should remain closed in this way until the speculum is introduced.

In all cases the bandage should be removed and the eye examined under the strictest aseptic precautions, as strict as those employed at the time of operation.

On the first sign of infection of the wound, the edges of the lids are to be thoroughly cleansed in the same manner as at the time of operation; the conjunctival sac is to be thoroughly irrigated with the sterilized normal salt solution; the wound is to be reopened and cauterized through its entire length with the galvanocautery; and the anterior chamber is to be gently, but carefully, irrigated with a sublimate solution (1 to 5000); and then the conjunctival sac must be again irrigated, and the lids must be closed simply under a moist sterilized pad. C. S. Bull (Medical Record, September 24, 1904).

FEVER.

A toxin acts first of all by depressing the temperature, and fever is a reaction on the part of the body, an attempt to expel that toxin from the body. We are perfectly justified in limiting the excessive rise of heat as far as we can. This action of the toxin will explain a good many things about the rise of fever. Most acute infections are attended by distinct shivering, chilliness, and sensation of cold. We seldom put a thermometer under the tongue until the patient has begun to warm up. It has been shown by experiment upon animals that the first result of inoculation with a toxin is to depress the temperature. The malarial organism, the germ of yellow fever, pneumonia, typhoid, all of them, tend to depress the temperature, and the patient shivers, feels cold, and if he has been in a draught says that is what did it. The conception of cold as a source of disease owes its origin to this one thing. The chill is the first stage of the disease. One of the things we have most to fight

in our attempt to rationalize the public is this baseless dread of cold air.

Fever, first, must be regarded absolutely as a symptom; to fight fever as such is absurd. It is an indication of the reacting power of an animal. If a rabbit is given a small dose of toxin, his temperature rises, if the dose is quadrupled his temperature will go right down and he will die in collapse and hypothermia. The reacting power is indicated to a considerable degree by the amount of fever and fighting against it should be avoided, lest we should fight one of our best friends. The cause should be looked for and removal attempted.

For a long time quinine was considered one of the best fever medicines, for the sole reason that in one of the commonest forms of fever — namely, malarial—quinine destroyed the germs, and therefore reduced the temperature. Hence with childlike confidence and credulity it was given in pneumonia, typhoid, sepsis, even in common colds. It got a reputation as an antipyretic simply because it was a germicide in malaria. Well-marked intestinal antiseptics that are absorbed into the blood and neutralize the poison are legitimate, as they are really antagonists to the poison. Quinine, salicylic acid, salol, and the coal tar products are strong germicides and have probably more or less specific effect upon the germs for which they are most commonly administered.

The method of treating fever by promoting escape of heat by putting the patient in water is also satisfactory. Heat is no advantage to the patient. There is danger in the use of aconite and veratrum; the patient is simply poisoned so that he cannot react. Nothing should be done to depress the vital activity of the patient. He will stand any amount of fever better than the cardiac depression of aconite or veratrum viride. The cold bath is legitimate and beneficial in other ways besides lowering the temperature. Under some circumstances where the fever is of short duration, where the main thing to combat is discomfort in the patient, the author believes the administration of small doses, $1\,^1/_2$ to $2\,^1/_2$ grains of phenacetin or antipyrin is justified. They will produce as good results in the reduction of temperature as massive doses. Moderate doses of a reasonably harmless remedy the author believes to be admissible in fever.

In most cases the author believes that fever is not harmful to the tissues of the individual. If that is the case, then fever should not be fought as such. Many of the most dangerous germs, such as those of erysipelas, anthrax, typhoid, etc., are decidedly checked in their activity by exposure to a heat of 102° to 104° F. It is possible that this rise of bodily heat may limit the activity of the germ. A fever should not be interfered with simply to get rid of the heat. The writer fears that too much of the treatment of fever in the past has come near justifying Huxley's cynical figure, comparing the battle between the patient and disease to two men fighting in a dark room, and the doctor, to a man with a club striking blindly into the *mêlée*, sometimes hitting the disease and sometimes the patient. Woods Hutchinson (Northwestern Medicine, October, 1904).

GALL-BLADDER, INDICATIONS AND LIMITATIONS OF VARIOUS OPERATIONS ON THE.

The opening of the gall-bladder, followed by external drainage, is the op-

eration of choice in all ordinary cases of stone, in either the gall-bladder or the cystic duct, but is not justifiable in the presence of either existing or reasonably prospective obstruction of the common duct, or in cases in which the immediate return of the bile current to the bowels is demanded for the purpose of digestion and nutrition.

Cholecystectomy is demanded in the presence of atrophic or neoplastic changes in the gall-bladder sufficient to destroy its functional capacity and in extreme cases of infection of that viscus, but it is not justifiable in the presence of obstruction of the common duct or in any case in which the anatomical integrity and functional power of the gall-bladder can be restored and maintained without risk to the life or health of the patient.

Cholecystenterostomy is the operation of necessity in cases of permanent obstruction of the common duct, and should be the operation of choice in all cases in which the size and condition of the gall-bladder and of the neighboring structures will safely permit an anastomosis to be made, and in which drainage of the gall-bladder for any purpose whatever is demanded for a more or less indefinite period. C. A. L. Reed (Lancet-Clinic, October 22, 1904).

GONORRHŒA, SILVER SALTS IN.

Solutions of the silver salts, organic or inorganic, do not penetrate the mucosa to any great extent. The prolonged pressure of any fluid upon the urethral mucosa causes temporary compression of the capillaries; the removal of this pressure is followed by dilatation of these capillaries, resulting in an increased leucocytosis through the walls of the vessels; the point of least resistance is the lumen of the urethra; this induces more rapid exfoliation of mucous membrane cells, and literally carries out the infectious agent. It is upon the free gonococci thus forced into the surface layer of the mucous membrane that the silver salts exercise this bactericidal action. W. L. Baum (Medical News, October 15, 1904).

HÆMORRHAGE, ACCIDENTAL, IN GYNÆCOLOGY AND OBSTETRICS.

In the absence of disease all accidental hæmorrhage has a natural tendency to stop. All accidental hæmorrhage commences as internal hæmorrhage, and many cases of internal hæmorrhage cease spontaneously, and are diagnosed at all or only by finding old clots on the surface of the placenta postmortem.

A large proportion of cases of so-called accidental hæmorrhage is due to low insertion of the placenta, and the diagnosis of this is difficult, and cannot always be made with the finger. Hæmorrhage from low insertion of the placenta is not likely to cause either internal or combined hæmorrhage.

Rupture of the circular sinus of the placenta gives symptoms that are very similar to those of internal hæmorrhage, or even combined hæmorrhage. There are other factors, besides want of tone in the uterine walls, that tend to cause the hæmorrhage to remain internal—for example, lessening of the *vis a tergo*, the position of the first hæmorrhage, and its amount, as well as firm adhesions around it. In the worst cases, where the cervix is long and os rigid, it is (probably?) necessary to deliver the woman immediately. The Cæsarean section, either vaginal or abdominal, is a better way of doing this than the *accouchement forcé*. Less severe cases, when the cervix is long and the os rigid,

should be treated by a properly applied vaginal plug. In writing or speaking English it is better to use the term "plug" and "plugging" than the terms "tampon" and "tamponading."

Uterine contraction may cause the hæmorrhage to cease during the contraction, but not during the intervals, except indirectly as favoring thrombosis. If uterine contractions stopped the hæmorrhage, accidental hæmorrhage during labor would not occur. Accidental hæmorrhage is often due to uterine contractions—for example, after the sudden escape of excessive liquor amnii and after the birth of the first of twins.

When the hæmorrhage escapes from under the placenta the tendency to further separation of the placenta is lessened, because the membranes (unless morbidly adherent) are easier separated than the placenta. This is even more the case once the hæmorrhage has become external. Rupturing the membranes must always cause a diminution in the intra-uterine tension. It is uncertain how soon pains will supervene. Rupture of the membranes makes it more difficult to increase the intra-uterine tension by plugging the vagina. Therefore rupture of the membranes is not good treatment for ordinary cases of accidental hæmorrhage, unless it causes rapid expulsion of the child. Rupture of the membranes is a most efficient way of stopping accidental hæmorrhage which is caused by a persistence of the bag of waters far into the second stage. For an exactly similar reason, rupture of the membrane is most efficient in stopping hæmorrhage from low insertions of the placenta.

The great danger in effecting delivery of the child *per vias naturales* when the cervix is only partially dilated is due to the disposal to effect the dilatation. In plugging the vagina and the application of a tight binder and a firm perineal bandage we have a most efficient method of treating all but the worst cases of accidental hæmorrhage, perhaps even these.

If the hæmorrhage has been recurrent the same symptoms are more urgent than where the hæmorrhage appears for the first time. Adhesions may stop internal hæmorrhage by causing localized increase of tension, but their presence cannot be diagnosed. If the original seat of the hæmorrhage is at the very center of the placenta, the whole of the placenta will become detached, and, if the placenta is situated at the fundus, the membranes also will be all separated before the hæmorrhage becomes external. Prolapse of the placenta depends on both these conditions being present. All cases of accidental hæmorrhage should be reported and not the severe cases only, and the position of the rupture in the membranes carefully noted. A. V. Macan (British Medical Journal, October 22, 1904).

HAY FEVER, ETIOLOGY OF.

The author discusses the relation of the chemistry of the saliva and the nasal secretions to diseases of the mucous membrane of the mouth and upper respiratory tract. The reactions of saliva and nasal mucus, as given by the ordinary litmus test, are misleading, owing to changes occurring after they have been poured out on the surface of the mucosa. Other tests, notably the polariscopic, are more reliable. The author has studied the secretions from patients whose fluids presented, respectively, neutral, hypo-acid, and hyper-acid conditions. The excessively alkaline condition is observed more com-

monly in hay fever, although in this disease any one of the three conditions may prevail. To these the author adds a fourth or irregular variety. In a hay fever case with alkaline reaction, remedies are to be given which will bring about an acid or neutral reaction, or *vice versa*. Acting on this theory, the writer has been able to relieve cases resisting all the usual forms of treatment. On this theory the altered secretions are the exciting irritants of hay fever attacks, and not the various pollens, etc., from without. Such a disturbing cause acting on a neurotic patient, with perhaps intranasal lesions, can produce an outbreak of hay fever just as well as pollen, etc., can under the same conditions. In such cases the serum therapy would be unavailing. The writer's experience with remedies acting on the secretions in the manner described leads him to believe that over 80 per cent. of cases can be relieved and cured. Braden Kyle (Journal of the American Medical Association, October 1, 1904).

HEART MURMUR, THE SIGNIFICANCE OF.

The writer divides all heart murmurs into those due to organic disease and those occurring in a heart that is structurally normal, or accidental murmurs. These last occur in anæmic and nervous persons or when the organism is in some way below par. They are systolic, best heard in the pulmonic interspace, and vary greatly in intensity at different times and in different positions of the body, while exercise, respiration, and position have more effect than in organic murmurs. They are often loudest when the subject lies on the back and at the end of inspiration. They are soft blowing, and high in pitch. There are no other physical signs of heart disease present. They are probably cardio-respiratory in origin. Their prognostic significance is good, as they usually disappear with their accompanying condition. In the case of organic murmurs a careful physical examination is necessary for the formulation of a correct prognosis. The history of rheumatism is of great value, and the rhythm and point of maximum intensity of the murmur are of importance. A murmur that accompanies the normal heart sound is of less gravity than one that replaces it. Postsystolic murmurs indicate a mild lesion; late diastolic ones are most grave. The intensity of a murmur is of no value in prognosis. Aortic insufficiency is most grave, sudden death often occurring; if the lesion is a result of arteriosclerosis it will be progressive; mitral stenosis is the next in gravity; after this comes aortic stenosis. The presence of compensatory hypertrophy makes the prognosis better. The extent of the heart lesion is of the greatest prognostic value. If the heart beats forcibly and well the lesion is a small one; a weak intermittent pulse is a danger signal. Cardiac valvular disease is more serious in children and old people than in adults; habits, mode of life, occupation, and temperament are important factors in prognosis. J. S. McLester (American Medicine, September 3, 1904).

IMMUNITY AND SERUM THERAPY, INFLUENCE OF THE LYMPHATIC GLANDS ON.

Guiseppe Evoli (Giornale Internazionalle delle Scienze Mediche, August 31, 1904) has studied experimentally the effect of the lymphatic glands on the passage of germs from one part of the body to another. He goes over the theories of the production of immunity and the different influences that oppose

themselves to the action of bacteria. These are divided as follows: 1. Organs that oppose the penetration of the bacteria: skin, mucous membranes, etc. 2. Organs which oppose the multiplication of microbes and their deleterious action: spleen, liver, etc. 3. Organs which aid the elimination of the microbes and their toxic products: kidneys, lungs, sweat glands, etc. The lymphatic glands are classed among the organs that protect the organism by arresting the passage and retarding the spread of microbes, while allowing them for some time to retain their virulence. The microbes remain in the lacunæ of the reticulum of the glands. The author concludes from his experiments that the lymphatic system, by the richness of its distribution, is one of the most important means of defense against microbes. It retards their passage for a time, during which the organism does not feel their effect. This is due to the anatomical structure of the lymph glands. There is an antimicrobic influence in the lymph which attenuates the virulence. These facts are confirmed by serum therapy. (Medical Record, October 15, 1904.)

INEBRIETY, LOSS OF CONSCIOUSNESS AND AUTOMATISM IN.

Automatism in inebriety, with loss of consciousness, is not an uncommon condition, particularly in continuous drinkers. It also is seen in periodical cases as well as in epileptics, and is a distinct palsy of the brain. All unusual acts or crimes committed by inebriates or hard drinkers should be studied, particularly where there is a possibility of loss of consciousness with alleged amnesia. When this condition is established the person is both legally and practically irresponsible for his conduct during this period, and his mental condition is one of great gravity requiring immediate care and attention. T. D. Crothers (Cincinnati Lancet-Clinic, October 15, 1904).

INGUINAL HERNIA, NONSTRANGULATED, RADICAL TREATMENT OF.

By the methods of Bassini and Halsted the modern surgeon has at his command two absolutely reliable operations for the radical cure of hernia. With the modern strict aseptic technique, the operation is as safe as any in surgery, and the risk of a fatal termination in an operable case is so insignificant as not to be worthy of consideration. The danger of relapse is so remote as to be of no moment in forming a decision with reference to the advisability of an operation in any given case.

If the above propositions are true, every operable case of hernia in patients between the age of 4 and 50 years and without disease of vital organs, should be subject to the radical operation as is the custom of our military service. J. M. Banister (Journal of the American Medical Association, October 22, 1904).

INGUINAL HERNIA, RADICAL CURE OF.

In the normal inguinal canal the anterior wall is relatively stronger than the posterior. This condition is exaggerated in inguinal hernia so that, the larger the hernia, the greater the muscular gap between the arching fibers of the internal oblique and Poupart's ligament. In the smaller herniæ almost any of the modern operations either with or without transplantation of the cord will suffice. When the muscular gap is marked some method must be employed in which a strong aponeurotic structure is used to fill the gap. The Andrews modification of the Bassini operation, by utilizing a

portion of the external oblique aponeurosis as an additional layer in the posterior wall of the canal, gives the latter great strength. The majority of surgeons believe that best results are obtained by not transplanting the cord. It is still an open question whether or not the veins should be resected. D. N. Eisendrath (Journal of the American Medical Association, September 10, 1904).

INTESTINAL AUTO-INTOXICATION, TREATMENT OF.

Professor Combe, of Lausanne, treats of this subject in the Archives de Médecine des Enfants. Referring to treatment, the writer thinks that the only rational mode of procedure is by diet. Nitrogenous food should be diminished and the intestine filled with carbohydrates. Farinaceous food is mainly indicated, supplemented by milk. Milk has a strikingly antiputrescent effect in the bowel, an action which is also very markedly possessed by fresh cheese. Dr. Combe pins his faith to farinaceous foods. They are slowly absorbed, giving off lactic and succinic acids gradually. They should be given in large amounts, but in small and frequently repeated meals. The following general rules for the diet are recommended: 1. Not to drink with meals, and not to eat when drinking. 2. To divide the nourishishment into numerous small meals, taking alternately a solid and a liquid meal. 3. To rest lying down, either on the back or on the right side for an hour after each meal, but not to go to sleep. 4. To exclude from the diet all foods which are capable of acting as culture media for the proteolytic bacteria. 5. To avoid all meat that is "high" or apt to undergo fermentation. 6. If enteritis be present, to avoid all food which contains a large amount of cellulose. 7. In severe cases of auto-intoxication or enteritis to give up meat entirely, and even milk at first. 8. To prefer, when possible, raw milk to boiled, and either to sterilized milk. 9. To take into the alimentary canal as much farinaceous food as possible.

It must be borne in mind that this diet is but a temporary and medical one, and that, as soon as its effect has been produced, a fresh element should be added to it, such as pasteurized milk and blackberry juice, so as to avoid scurvy. The next object is to get rid of the products of putrefaction in the large intestine. With this end in view, the putrescible matters should be washed out of the top of the bowel by a thorough irrigation of the colon. Such irrigation serves the further office, by means of partial absorption, of not only allaying the patient's thirst, but of producing a beneficial diuresis, and of washing out, as it were, the liver, the blood, and the kidneys. As a rule, nothing answers so well for the irrigations as sterile salt solution, but in some cases solutions of tannin, calumba, or ichthyol and oxygenated water may be used. Boric acid is not to be recommended, as it may become absorbed and give rise to symptoms of poisoning. The aim now is to lessen the putrefaction of nitrogenous matters in the large intestine. An ordinary purgative, as castor oil, or a saline given alone, does not accomplish this result, merely stirring up the *débris* in the bowel and tending to aggravate the symptoms of auto-intoxication, and is found to be followed by an increase of the sulpho-ethers in the urine. A disinfectant dose of calomel, however ($^1/_3$, $^3/_4$, or $1\,^1/_2$ grams, according to the age of the patient), given twice at intervals of two hours, and fol-

lowed by castor oil, has a distinctly beneficial effect. This should be repeated after ten days, and afterward at longer intervals. The last measure to be taken is to favor the elimination of those poisons which have already found their way into the circulation. Irrigation of the bowel generally effects this purpose, but in severe cases large subcutaneous injections of sterilized saline solution may be used. Editorial (Medical Record, September 3, 1904).

INTUBATION.

O'Dwyer tubes and instruments are generally satisfactory. No cheap modifications or substitutes are required. Digital exploration of structures about the entrance of the larynx are as relatively important in diagnosis as examination of the naso-pharynx.

Failure to intubate is due to the operator, except in very rare cases, in which it is impossible to intubate. Obstruction of the tube is more frequent after large doses of antitoxin. Therefore the string should be left when indicated.

Early intubation is advocated in private practice and removal of the tube at the beginning of the fourth day. Early removal of tube and large doses of the antitoxin before operation are in direct ratio. Intubation is usually indicated as the primary operation in papillomata of children and acute stenosis in adults. B. R. Shurly (Journal of the American Medical Association, October 29, 1904).

IODINE TREATMENT OF SUPPURATION.

The tincture of iodine applied locally is one of the most efficient drugs for the treatment of suppuration. Its use is of the greatest value in scalp wounds, in ulcers of the leg, in inguinal adenitis, and in chronic vaginitis. The author asserts that after one or two applications of iodine to an infected and discharging wound the pus will almost entirely disappear and the wound will be practically dry. In surgical tuberculosis favorable results are to be anticipated. W. S. Pugh, Jr. (American Medicine, October 15, 1904).

LARYNGEAL TUBERCULOSIS, PROGNOSIS OF.

The prognosis of laryngeal tuberculosis depends upon our understanding of its nature, its varieties, and its stages. All cases are not hopeless, nor should one cure cause too much optimism.

Laryngeal tuberculosis materially influences pulmonary and general symptoms. *Per contra*, it may possess no bearing upon the general course of the disease. The course of the pulmonary invasion markedly effects the laryngeal complication.

Disturbances of phonation are due to infiltration, to ulceration, or to both combined. In many cases the voice may be much improved. In extreme infiltration, where improvement may not be obtained, the process does not necessarily go on to ulceration, or cause general decline.

Disturbances of deglutition may be due to swelling without pain or to pain,—namely, dysphagia or odynophagia,—and here the character of the lesion influences the prognosis. Intralaryngeal lesions improve more rapidly than those situated on the epiglottis or ary-epiglottic folds.

Early recognition of a primary lesion or secondary complication is essential to a favorable termination. The patient's environment and his ability to rest his voice influence the prognosis. Suitable hygienic and climatic condi-

tions are essential to a favorable outcome. Robert Levy (Laryngoscope, October, 1904).

LARYNGEAL TUBERCULOSIS, THYROTOMY IN.

Thyrotomy for tubercular disease of the larynx should be undertaken only after a most careful study of the case. As a remedial agent it should be considered only in a certain limited class of cases. To prove effective it should be performed early, and especially in the so-called or apparently primary cases. It should be performed in the absence of pulmonary signs, or at least during a latent period of a pulmonary condition with a good general physical condition. O. J. Stein (Laryngoscope, October, 1904).

LEUCOCYTOSIS IN DIAGNOSIS OF FEVERS.

It is not so much the absolute increased percentage of large lymphocytes which is diagnostic of malarial infection as the relative increase over the small lymphocytes. In cases of malarial infection without much fever and without quinine history the polynuclears are markedly diminished and the large lymphocytes very much increased in proportion. In the absence of an adenopathy, possibly also of influenza and measles, the above finding is positive evidence of present or very recent malarial infection.

During the rise of a malarial fever, or as a result of quinine therapy, the polynuclear leucocytes may reach 80 per cent., but in that event the large lymphocytes exceed in number the small ones.

In malarial hæmoglobinuria any of the various blood findings characteristic of malarial fever may be present in any stage, and there is no evidence now at hand to explain this.

Malarial and typhoid fevers can be more positively differentiated from fevers of sepsis, pneumonia, rheumatism, malignant tumors, etc., by the differential leucocyte count than by the hæmocytometer, and it can be done on dried films, away from the bedside.

Malarial infection makes a strong impress on the leucocytic relation, no matter with what other disease it is associated. It is not safe to rule out typhoid fever when the malarial variation is found, but, as it calls for antimalarial medication, the therapeutic test may decide before a Widal reaction would appear.

In a gradually developing fever, the absence of marked increase in large lymphocytes or polynuclears during the first week justifies a preliminary diagnosis of typhoid fever. William Krauss (Journal of the American Medical Association, October 22, 1904).

LUNG AND HEART DISORDERS, RESPIRATORY EDUCATION IN THE TREATMENT OF.

For many years the author has given much attention to the development of the chests of those who consult him, young and old. This has been followed so often by benefit of long standing disorders of lungs and heart, and of conspicuous improvements in many other directions, that he emphasizes the importance of respiratory education in most persons ill or well.

In most persons the mobility of the thoracic walls is conspicuously defective. The ribs in middle aged people have lost in great part their normal hingelike action. This demands full rhythmical breathing, both forceful or at least emphatic, inspiration, and expiration. The

rate of the breathing should be, first, that which is comfortable, about 5 seconds in and 7 seconds out, and then increased in length gradually until full inspiration can be rhythmically increased to 20 or more seconds in and 25 or more seconds out. The apices of the lungs are well known to be only rarely fully distended, and by reason of disuse and consequent defects of nutrition readily become the seats of infection. This apical development should be secured in everyone, especially in those whose disablement, by pneumonic or cardiac disorder, discourages or forbids active exercise. The valuable effects which breathing exercises are capable of producing upon the digestive organs are not sufficiently appreciated. When it can be demonstrated, however, that through the concomitant action of the external abdominal muscles and diaphragm powerful effects are wrought upon the liver, the gall-bladder, the abdominal viscera generally, especially the intestines and stomach, few will fail to recognize their potency. In short, by proper breathing exercises not only the thorax, but the abdomen, is involved in systematic activities. The patient may lie, sit, or stand, and the physician should explain that the thorax should be held so that the ribs are as nearly at a right angle to the vertebral column as feasible, and that the act of breathing shall be performed chiefly by the expansion and contraction of the lower ribs, which should acquire an increasing mobility and range.

In expansion the whole chest should enlarge symmetrically, with no marked protrusion or tension of the abdominal tissues. It should fill up steadily toward the apex, and when no farther expansion can take place there the sides should then inflate in all directions, but without much downward pressure on the diaphragm. After holding the air in the chest at the highest point of tension for a few seconds, expiration should begin by the indrawing of the umbilicus, and the force shared in by all the abdominal muscles which can be elicited in the act, the chest still held high, and a steady compression exerted upon the diaphragm chiefly. When the abdominal muscles have contracted to their full capacity the lower ribs follow, and finally all the air which can be expelled is extruded. A practical point sometimes found of value is that at the end of expiration a slight cough may be encouraged which seems to finish the act. Indeed, at first this forceful extrusion of air is usually followed by several coughs; soon this ceases.

The possibilities of variation in the methods along these lines are remarkably large. The effects upon digestion of rhythmical breathing are gratifying beyond original expectation. Constipation yields better than to any other agent known to the writer. Lymph stasis of the abdominal regions, obesity, visceral ptoses are conspicuously modified. It is an obvious corollary that personal appearance consequently improves not only from the repair of organs and tissues through lymph cleansing, oxygenation, etc., but the psychical effects, the regeneration of central nervous energy, are most gratifying. J. Madison Taylor (New York Medical Journal and Philadelphia Medical Journal, October 8, 1904).

MAMMA: ITS PHYSIOLOGICAL PURPOSES.

The mamma is a highly organized and structurally a most complex organ. Its functions are manifold. It is an essential and integral part of the generative system. Intermittent in func-

tion, like the testes, total ablation, like double castration, makes its impress on the sensorium. Very frequently degenerative or pathological changes begin in a single isolated lobe—about twenty of which are in each breast. In all non-malignant affections radical measures should be limited as far as possible to the affected area or lobe. It is only in malignant diseases of a progressive type and when life is imperiled that total sacrifice of the breast is justified.

Inasmuch as the functions and purposes of the axillary lymph ganglia are yet imperfectly understood, and their removal quite invariably enhances the risks of operation, involves a wide mutilation of the chest walls, and always leaves more or less impediment in shoulder action, or even at times a painful tumefied limb, it is only as an extreme and exceptional measure that their complete extirpation should be practiced. T. H. Manley (Boston Medical and Surgical Journal, October 27, 1904).

NASAL SEPTUM, DEVIATIONS OF THE.

There is no single operation suitable for all cases of deflection of the nasal septum. Each case should be a study unto itself and the judgment of the surgeon must determine the operative measure best suited to that particular case. The Asch operation is eminently satisfactory in the large number of cases in which the cartilaginous septum is alone deflected. Osseous deviation and cartilagino-osseous deviations are not suitable for correction by the Asch method.

Deviations of both the cartilaginous and osseous septum offer the most difficult problem to solve, and no one operation meets every indication, but in many cases the Watson-Gleason operation, modified to suit the case, offers a good chance for success.

Careful observation will discover a fair proportion of cases in which the removal of spurs either cartilaginous or bony, or both, will accomplish the best result; and it is more desirable to attain the result by this method than by the more formidable division of the septum. There are a certain number of cases which must be classed as inoperable. Perforations occur in about the same number of cases in all operations in which an entire division of the tissues of the septum is effected. J. S. Gibb (Journal of the American Medical Association, October 29, 1904).

NEURALGIA, TRIFACIAL, OSMIC ACID INJECTIONS IN.

Trifacial neuralgia, tic douloureux, is not the result of a pathological entity which has so far been definitely determined. The tendency after all type of operation, with the possible exception of removal of the sensory root behind the ganglion, is to recurrence of the disease. This is probably due to the regeneration of certain nerve elements following the deep operation, and anastomosis and retention following the superficial. Sudden shocks and irritation of the terminal filaments of the trifacial not infrequently cause an immediate and occasionally a permanent cessation of the neuralgic pain. The mortality from the superficial exsections is practically *nil;* the mortality from the intracranial operations is great. The hazard is greater than should be taken in a disease which does not in itself jeopard life. Injections of osmic acid in 1 to 2 per cent. solution into the nerve trunks relieve the pain immediately, and in a large percentage of cases for a long period of time. The injections into the super-

ficial tissue for peripheral neuralgia should be abandoned, as the nerve trunks are easily located, and there is no danger of superficial necrosis following such operation. It should never be injected into a motor nerve or a motor nerve area, and, therefore, never into the spinal nerves, except in amputation stumps. It produces a local necrosis of the tissue into which it is injected, and even of the wall of the foramen. This necrosis does not suppurate unless the area is exposed to mouth infection. In that case the suppuration often continues for weeks, draining into the mouth, giving no special inconvenience, and in no way interfering with the final result. The best results are obtained with a $1\frac{1}{2}$ to 2 per cent. solution; this should be injected in many places into the nerve trunks and also into the foramen. All of the nerve branches should be injected—the palatine, lingual, mandibular, superior maxillary (infra-orbital), and supra-orbital. They can all be exposed through mouth incisions except in supra-orbital. Many times there are three or four divisions of the supra-orbital, and they should be searched for carefully and each injected. Occasionally it is necessary to inject the auricular branch. The posterior palatine is not so difficult to inject as one would at first imagine. The foramina can and may be injected without anæsthesia or incision. The procedure is quite painful, however, and is not certain in its results. The injections can be made with local or general anæsthesia (general preferred by the author) and are free from danger. Judging theoretically from the experience with incisions, resections, and ganglion operations, the relief should not be permanent after the injection of the osmic acid. From clinical experience up to date, however, the fact is that many cases are permanently cured. Time alone must determine the final result of this treatment. J. B. Murphy (Journal of the American Medical Association, October 8, 1904).

OVARIES, CONSERVATIVE TREATMENT OF DISEASES OF THE.

One tube and one ovary or a part of one, or a part of both, should be preserved where possible, especially in women during the childbearing period. In many cases of pyosalpinx it is sufficient to incise the abscess at the presenting point, externally or *per vaginam*, as a primary procedure, followed later, if necessary, by enucleation of the pus-sacs by the abdominal route.

Conservatism in retaining one or a part of one of the ovaries or tubes, or both, resorting to drainage, *per vaginam*, of hydrosalpinx for the purpose of restoring tubal function is now accepted by the best practitioners. There may be recovery without operation by drainage through the tubes, uterus, and vagina. Ninety per cent. of cases of large gonorrhœal pyosalpinx treated expectantly show laboring capacity even in the working classes.

The unhappy consequences not infrequently following removal of the tubes and ovaries—such as hernia, fistula, vasomotor disturbances, melancholia, suicide, and insanity—should make conservatism worthy of consideration. J. N. Mendenhall (American Journal of Surgery and Gynæcology, October, 1904).

OZÆNA, ETIOLOGY AND DIAGNOSIS, AND RELATION TO PULMONARY TUBERCULOSIS.

Sinus disease probably causes ozæna in a certain percentage of cases, or at

least it must be considered a strong predisposing cause.

Suppurative processes in the accessory sinuses, as shown by Pearce's investigations, are frequently present in certain of the infectious diseases of childhood, particularly scarlet fever, measles, and diphtheria, and for this reason these infectious diseases must be considered at least possible etiological factors of ozæna. While a certain percentage of cases are caused by sinus disease, this is not sufficient to explain the pathogenesis of the whole clinical picture of ozæna. A large number of ozæna patients having pulmonary tuberculosis would certainly point to the nasal condition as a strong predisposing cause for the development of the tuberculous condition. C. F. Theisen (Laryngoscope, October, 1904).

PLAGUE, CARBOLIC ACID TREATMENT OF.

The author has had considerable experience with carbolic acid in the treatment of plague, and when given in large doses in the commencement of the disease it has proved very useful. The acid was given in 12-grain doses every second hour to adults and in smaller doses to children. It was dissolved in water and sweetened with syrup and sandalwood, colored with a little tincture of cardamom. The author gave it well diluted, and advised his patients to drink large amounts of diuretic, cooling drinks, especially the water of watermelon and ordinary melon seeds ground in a mortar and mixed with water. Cardiac tonics—such as digitalis, strychnine, and rum—were given, when necessary, as in the old or weak. In favorable cases the temperature fell several degrees within forty-eight hours, and within five days of the commencement of the treatment the temperature was normal. Of 18 cases treated in this way, 12 were cured and 6 died; 17 were bubonic cases and 1 was septicæmic. Of those who died, 5 were bubonic and 1 septicæmic. In only 2 of the 18 cases was carbolic acid poisoning discovered, but this promptly disappeared on reducing the dose. Septicæmic cases are not influenced much by the use of carbolic acid. Mir Hidayatullah (Indian Medical Gazette, August, 1904).

PLEURAL EFFUSION, CYTODIAGNOSIS IN.

A true pleural effusion has a specific gravity over 1.010, usually much higher, with an average of about 1.0179; a high fibrin and albumin content. A pleural transudate has a low specific gravity, with an average of about 1.008; a small fibrin and albumin content. An almost certain diagnosis of tuberculous pleurisy as can be made by the morphological examination of the fluid alone, and rests on its having a high specific gravity—1.012 to 1.024, average, 1.0186; a large amount of fibrin and albumin with an accompanying lymphocytosis. There is usually a considerable rise of temperature at the outset, which may average 103.4° F.

According to some authorities, one may find a polymorphonuclear leucocytosis before the third or fourth day of a tuberculous pleurisy; in which case subsequent examinations will be necessary to establish a positive diagnosis.

A diagnosis of postpneumonic serous effusion lies in its high specific gravity, averaging 1.0165; large fibrin and albumin content, with a polymorphonuclear leucocytosis, 58 to 92.5 per cent., averaging 71.7 per cent. The temperature is usually much lower than in the tuberculous cases, unless complicating an active pneumonia, averaging at the outset about 101° F.

A differential diagnosis between a pleural transudate and a tuberculous pleurisy cannot rest alone on a differential cell count, as they both show a lymphocytosis, but must rest on a more complete examination, including the specific gravity and the amount of fibrin and albumin, as already shown and explained. H. S. Carter (Medical News, October 1, 1904).

PNEUMOCOCCIC ENDOCARDITIS.

Endocarditis complicates pneumonia in about 1 per cent. of all cases, and in 5 per cent. of the fatal cases. Endocarditis due to the pneumococcus makes about 25 per cent. of all cases of bacterial endocarditis. The pneumococcus may cause endocarditis of any degree of intensity, but in over three-fourths of the cases it is of the severe or so-called malignant type. The exudate is usually massive, but there is less disposition to ulceration and perforation of the valves than in endocarditis due to the streptococci and staphylococci. The endocarditis complicating pneumonia is almost always due to the pneumococcus, although it may be due to other bacteria.

Pneumococcic endocarditis is much more often left- than right- sided, but involvement of the tricuspid and pulmonary valves occurs about four times as often as it does with endocarditis in general. The pneumococcus attacks the aortic valves more often than the mitral, and relatively twice as often as the other organisms commonly causing endocarditis. The pneumococcus attacks the mitral valve relatively only half as often as other organisms, while it attacks the tricuspid about twenty times as often.

Infarcts occur in about one-half the cases. Meningitis complicates the pneumococcic endocarditis in about 60 per cent. of the cases. Pneumococcic endocarditis is relatively twice as common in females as in males, and is seen much more frequently after thirty years of age than before. An old heart lesion favors the development of pneumococcic endocarditis.

The clinical picture of pneumococcic endocarditis does not differ from that due to any acute endocarditis. The endocarditis may develop before, during, or after the pulmonary involvement, but the pneumococci may infect the endocardium without there being at any time any involvement of the lungs. A considerable number of the cases show a period of normal temperature between the fever due to the pneumonia and that due to endocarditis. This afebrile period is rarely longer than a week, and is usually only three or four days. The endocarditis may be afebrile. The duration varies from a few days up to months. The pulse is usually rapid and irritable, but bradycardia is more frequent than in other forms of acute endocarditis. Subjective symptoms referable to the heart are usually absent, except in cases where there is an old heart lesion, when they are due to the old rather than the fresh endocarditis. Physical signs of the endocarditis are often entirely lacking. Signs and symptoms from other organs are either those common to infectious processes or are due to infarcts, in which case they vary with the size and site of the infarct. Leucocytosis is frequently absent. Blood culture, carefully and perhaps frequently repeated, will show the pneumococci.

The diagnosis is difficult—impossible, in fact—in cases in which the endocarditis develops during the course of the pneumonia, and ends rapidly in death. Endocarditis should always be suspected

in a case of pneumonia which is followed by an irregular temperature not sufficiently accounted for by some other complication, such as empyema.

The prognosis is extremely grave, for 60 per cent. of the cases have a complicating meningitis, but it is probable that the percentage of recovery is higher than the reports so far published would lead one to infer.

The treatment consists merely in rest, absolute rest, with good, supporting food and stimulation as required. H. R. Preble (American Journal of the Medical Sciences, November, 1904).

POSTPARTUM HÆMORRHAGE, TREATMENT OF.

During the labor the extremes of undue delay and undue haste must be avoided. Forceps and turning when necessary should be employed, whenever possible, with dilated parts. The third stage should not be hurried, as meddlesomeness exhausts the uterine muscle. The uterus in a normal case should be allowed to separate the placenta and membranes, but the expulsion may be aided by suprapubic pressure.

In hæmorrhage the diagnosis should be settled with reference to its occurrence in the passive or active portions of the genital tract: for the former, pressure or stitch; for the latter, all that secures uterine retraction, but failing this pressure by tampon has to be considered. D. Berry Hart (Practitioner, October, 1904).

PREGNANCY, DETERMINATION OF THE LENGTH OF.

The many efforts which have been made to determine in advance the day on which the pregnancy in any given case will be terminated and labor begin have never as yet resulted in anything which can be considered of practical value. The author has made a special study of this subject and believes that one of the most reliable means is afforded by the periodically recurring pains. In many instances, however, these are not felt, and therefore pass unnoticed, but as a substitute the changes in arterial pressure, which run parallel with the menstrual periods, may be observed. The pains generally correspond in their rhythm with the periodic minimum and maximum of the blood-pressure. When the maximum blood-pressure and the periodic uterine contractions correspond, the day of expected labor may be quite definitely ascertained. This correspondence also explains what are often designated as early or late births. The number of months remains the same, but their individual length varies, and this causes an apparent variation in the length of the pregnancy. The author believes that the physiological month exists in reality, and not only in the form of the menstrual period, but is also marked by the recurring pains in pregnancy. It is marked by the variations in arterial pressure and also in other bodily functions. F. Schatz (Archiv f. Gynäkologie, vol. lxxii, 1904).

PULMONARY TUBERCULOSIS, EARLY PHYSICAL SIGNS OF.

Absence of physical signs in the chest is no better proof that a patient has not pulmonary tuberculosis than absence of tubercle bacilli in the sputum. Tubercle bacilli occurred in the sputum of only 71 (35 per cent.) of 201 incipient cases. Fifty-eight per cent. of these cases did not apply for admission into the sanitarium within the first six months of illness.

Auscultation is by far the most important method of physical exploration

in incipient pulmonary tuberculosis. Inspection (including mensuration) and percussion seem to the author of nearly equal importance. Palpation is of less value. Auscultation should be practiced before the patient is made to breathe deeply, as otherwise fine crepitation may be overlooked.

In many incipient cases little or no deformity of the chest exists. In a majority of the cases the chest is well developed, though possibly a trifle long, with a slight prominence of the clavicle on the affected side. The intercostal spaces and angle as well as Louis's angle are, in the majority of cases, normal.

The movement of the chest as noted by inspection is, in the majority of cases, restricted on the affected side. Restriction of movement on the unaffected side is by no means uncommon. Careful inspection showed a restriction of movement in 10 out of 18 cases, percussion of the bases revealed it in 13, radioscopy in 13. The lower part of the affected side shows in some cases an exaggerated movement on inspection, which may be of value in certain cases.

The vocal fremitus was normal in two-thirds of the cases and was three times more apt to be increased on the affected than on the unaffected side. Direct percussion upon the clavicle has not proved of much value in these cases. Some degree of dullness may occur without change in the auscultatory signs. Krönig's method of percussion is of value in the examination of incipient cases. Percussion and radioscopy seem of nearly equal value in determining the movement of the base of the lung. Radioscopy has a distinct advantage in deep-seated lesions; percussion, possibly, in "pleuritic" cases.

In 28 out of 201 cases (13.9 per cent.) percussion was negative, while auscultation revealed some pathological signs. Prolonged expiration was present in 32 per cent. (in 4 per cent. as the only abnormal auscultatory sign). Wavy breathing was present at the site of the lesion in 11 per cent. "Wavy breathing" at the left base may be a cardio-respiratory murmur. Weakened breathing at the site of the lesion was present in 10 per cent. (in 1 per cent. as the only abnormal auscultatory sign). Puerile breathing was present in 12 per cent., harsh breathing with loss of vesicular murmur in 8 per cent. Some deficiency in the vesicular murmur was present in 41 per cent.

The vocal resonance was normal in 62 per cent., increased at the site of the lesion in 38 per cent. Râles occurred in 70 per cent. The following order indicates their relative frequency: fine, medium moist, rhonchi, mixed. Pleuritic friction occurred in but 2 cases (1 per cent.).

In the 201 cases studied the site of the primary lesion was most frequently above the clavicle, then in the suprascapular area and subclavicular fossa. Sixty-one per cent. occurred on the right side. Lawrason Brown (Medical News, October 15, 1904).

RECTAL FEEDING.

From a review of 128 articles on the subject of feeding by the rectum the author thinks we can safely count on the carbohydrates being absorbed by the rectum in considerable amounts and utilized by the organism, although the absorption is not complete. Fats are not taken up well in nutrient enemata, but their absorption can be promoted by addition of pancreas, which has also a favoring action on absorption of albumin. The opinions of various authors in regard to absorption of albumin vary

widely. Individual conditions have much to do with it. The use of predigested albumin does not seem to offer any advantage, especially as such substances easily irritate the intestine. Casein and milk are not adapted for rectal feeding; the writer's personal experience has corroborated the general views in this respect. In regard to absorption of egg albumin, experiences have differed. It is certain that it is not absorbed in many cases, and defibrinated blood not much better. There is no reason for preferring the albumins to the carbohydrates; the arguments are all on the other side. In cases in which the nutrient enemas are merely supplementary to ordinary feeding, the carbohydrates are much superior. Dextrin deserves particular attention in this respect. The slight stimulating action exerted by the carbohydrates can be increased by the mode of using them and by addition of opium. At best, however, rectal feeding is unable even approximately to supply the requisite amount of energy even for debilitated, bedridden patients. F. Reach (Centralblatt für die Grenzgebiete, vol. vii, Nos. 8 and 9, 1904).

RENAL DISEASE, CHRONIC, SURGICAL TREATMENT OF.

Regarding the efficiency of incision of the capsule or of cleavage of the cortex, the writer comes to the following conclusions: The operation gives marked relief to the renal pain of chronic Bright's disease. In cases of hæmorrhage, in which the bleeding is practically limited to one side, the operation should be recommended, as it has been frequently followed by cessation of the hæmorrhage in chronic Bright's disease.

In cases of movable kidney associated with albuminuria, hæmaturia, tube casts, or blood casts, when due to causes resulting from the displacement, after the operation of incision and fixation, these symptoms disappear permanently, but when coincident with chronic Bright's disease only temporary good is effected by operation.

Anuria in chronic Bright's disease may be temporarily relieved, and the patient's life prolonged; dropsy and dyspnœa may subside for a time, but cure is not to be looked for in chronic noninfective nephritis as an effect of surgical treatment. In anuria with uræmic symptoms arising in the course of acute or subacute infective nephritis, free incision of the capsule and cortex, by relieving the tension and congestion of the parenchyma, enables the organ to resume its function, as shown by active secretion of urine from both kidneys after the operation. David Newman (British Medical Journal, October 8, 1904).

RHEUMATIC PROCESS, UNUSUAL FORMS AND FAVORITE LOCALIZATIONS OF THE.

The term muscular rheumatism should be dropped in the interest of clearness and simplicity, and the qualified term rheumatism substituted for it. "Rheumatism" should be understood as meaning all affections, produced by rapid changes of temperature, in the structures attached to the limbs, the periosteum, and in fibrous membranes. Those disposed to rheumatism do not from a prophylactic standpoint need to dread uniform cold, even if intense, but rather warmth, especially that caused by muscular effort, suddenly followed by rest and cooling off.

The most rapid and reliable remedy for recently acquired rheumatism is

muscular exercise. The patient should boldly perform the movements that cause pain. Articular rheumatism should, of course, be carefully excluded. Chronic rheumatism can be cured only by mechanotherapeutics, in which active and passive movements play the chief rôle. J. Schreiber (Medical Record, October 15, 1904).

SALT SOLUTION, PHYSIOLOGICAL.

The use of salt solution by the hypodermic or intravenous method seems constantly widening, yet comparatively little attention is paid to the constitution of the fluid used. The fluid used should be one that will not interfere with the performance of the blood functions nor injure the body cells, and as an index of the effect on cells in general the effects on red blood-cells are taken. If the solution is too concentrated the red cells shrink; if too dilute they first swell and later part with their hæmoglobin. The question of swelling or shrinking of the cells is determined by the osmotic effect, and not by the chemical composition of the fluid or actual weight of dissolved matter. The osmotic behavior of blood plasma and saline solution is shown by a method based on the fact that two solutions having the same freezing point have the same osmotic pressure, irrespective of the nature of the dissolved substances. The freezing point of human blood is 56° F. In health it varies but slightly from this figure in either direction. A depression of the freezing point of 0.03° or 0.04° C. may indicate a considerable renal insufficiency. The point to be emphasized is the constancy in health of the freezing point, and consequently of osmotic pressure. Hæmatocrit determinations of the salt solution in which red cells neither swell nor shink give 0.9 per cent. as the proper concentration. A 0.9 per cent. solution of sodium chloride is found, too, to freeze at about the same temperature as blood plasma. Chemical analysis of the plasma, computing the sodium as a chloride, gives 0.94 per cent. as the amount of salt in human plasma. From these determinations it is clear that the osmotic pressure of blood is equivalent to that of a sodium chloride solution of from 0.84 to 0.9 per cent. concentration. In view of these facts, it seems remarkable that the impression is so widespread that a 0.6 per cent. salt solution is "physiological." This solution is isotonic with frog's corpuscles, and it seems to have been assumed to be on that account innocuous to human corpuscles. It is better not to call a solution used for infusion "normal salt solution," as "normal solution" has a definite chemical significance in no way related to the solution under consideration. Even "physiological" solution admits of some ambiguity. For instance, such a solution for use in the conjunctival sac should have a concentration of 1.4 per cent., since that is the concentration of human tears. F. S. Matthews (Annals of Surgery, August, 1904).

SCURVY.

Manuiloff (Roussky Vratch, September 4, 1904) describes the epidemic of scurvy which appeared in 1902 in the province of Viatka as a result of the famine in that portion of Russia. The struggle against scurvy was thoroughly organized by the authorities, and a special staff of physicians was detailed for this purpose. The epidemic began in January with 8 cases and increased until it reached 5836 cases in May, when it began to give way under the efforts of the sanitary authorities, until it dis-

appeared in August. In addition to hunger, the cause of the epidemic was the severe cold and crowding of the peasants in their huts, in which domestic animals were also kept. The women suffered more frequently than the men and the disease occurred at all ages from 16 to 70 years, but only in rare cases did it affect children under 10 years of age. The treatment consisted in improving the nutrition of the patient; in the use of preparations of iron, quinine, and arsenic. In cases of loss of cardiac tone it was necessary to employ stimulants. The chief articles of diet were milk; vegetables, especially potatoes; beer, wine, lemons, citric acid, and cranberry juice. Massage and warm baths gave good results, but were used to a limited extent on account of the lack of facilities. Fresh air and sunlight were very beneficial. The gums were treated by the use of washes with boric acid, chlorate of potassium, and by painting with iodine, etc. In the presence of extensive hæmorrhages in the feet warm footbaths and warm compresses with vinegar gave excellent results. (New York Medical Journal and Philadelphia Medical Journal, October 15, 1904.)

SEBACEOUS GLANDS, ADENOMA OF.

It is seen from a consideration of the cases cited by Bock and others that, although denied by some observers, true adenomata of the sebaceous glands, without associated lesions of the skin, do exist, and that these adenomata undergo fatty metamorphosis with a formation of cysts. Tumors of this sort are rare, large ones especially so. On the other hand, adenoma, or a hyperplastic condition of the gland, secondary to or together with hypertrophy of the skin, is not so uncommon.

True adenomata of the sebaceous glands may become calcified or carcinomatous. The stroma of the tumor may undergo hyaline degeneration. Giant cells may occur in them.

The epithelial cells may undergo mucous degeneration and form cysts similar to those derived from the cell undergoing fat metamorphosis.

It has been shown that the tumor which is the subject of the writer's paper is neither a dermoid cyst nor a simple inclusion cyst, nor is it derived from a supernumerary mammary gland or the sweat glands. It would therefore appear that the growth is a true adenoma starting from the infundibula of the sebaceous glands and retaining the type of the secreting portion. It thus has all the characteristics of a steatadenoma or adenoma of the sebaceous glands, namely: the presence of acini, which, in their development, evolution, fatty metamorphosis, and calcification, correspond to sebaceous glands. W. C. Clarke (Annals of Surg., Oct., 1904).

SPLENIC ANÆMIA.

Splenic anæmia is a distinct variety of enlargement of the spleen. It can be diagnosticated by blood-count, which shows an abnormal and small number of leucocytes. It is, as a rule, slow in its development, and is but slightly relieved or retarded by treatment. Splenectomy seems to offer the only chance for a permanent cure. J. H. Carstens (Journal of the American Medical Association, October 1, 1904).

SWEATING AS A RELIEF TO THE KIDNEYS.

The author has examined the sweat induced by dry heat in a large number of patients suffering from nephritis and other diseases in which the induction of

perspiration was indicated as a therapeutic measure. He believes that the sweat must be designated as a fluid which is, as a rule, hypotonic, and only in rare cases, such as uræmic conditions, either isotonic or hypertonic. In comparatively rare instances the sodium chloride content approaches that of the blood. It may occur in cases of nephritis, but is apparently no more frequent than in rheumatic and neuralgic conditions.

The author's results seem to confirm the well known fact that sweating removes more fluid than solid constituents from the body tissues. There are exceptions, however, to this rule, and there are cases in which the sodium chloride content of the sweat equals that of the blood serum. The percentage of nitrogen in nephritis is often higher than that in the blood serum of nonnephritics. H. Strauss (Deutsche medicinische Wochenschrift, August 18, 1904).

TETANUS TREATED WITH BACCELLI'S METHOD.

In four cases of traumatic tetanus Mastri (Gazzetta degli Ospedali e delle Cliniche, August 21, 1904) obtained good results with Baccelli's method of injecting carbolic acid. The maximum daily dose of the drug was 70 centigrams, and the maximum dose for the entire course of treatment did not exceed 13.5 grams. During the treatment sodium sulphate was also given with the object of forming innocuous sulphocarbolates, and thus securing a less irritant product for the eliminative organs. The carbolic acid was simply dissolved in sterilized oil. No morphine, chloral, or other depressant was employed, in order to give full value to the treatment of Baccelli, and the author is enthusiastic as to the efficiency of this method of combating tetanus. (New York Medical Journal and Philadelphia Medical Journal, October 22, 1904.)

TUBERCULOUS CONVALESCENTS.

To know when health is restored to the tuberculous patient is both important and difficult. It is a well known fact that foci of infection lie concealed in a latent state long after all subjective symptoms have disappeared. Tubercle bacilli may have disappeared from the sputum, or may never have appeared there, and yet there may be and often are concealed foci, active or inactive, which are by no means easy to detect.

To form a correct estimate of convalescence a composite picture of all the available clinical evidence must be formed. If there is a gradual gain in weight extending over a comparatively long period; if the gain in weight is accompanied by a gain of strength; if the gain of weight and strength is permanent; further, if the cough, sputum, and bacilli diminish, and finally disappear, and if this condition is maintained for a comparatively long period, a cure may be considered as practically established.

Finally, if it is evident from the clinical symptoms, physical signs, or personal history, that the case was ever truly tuberculous, the conservative physician will use great caution in giving advice which will make it possible to lead his patient too near a danger.

It is safe to state that a person who had had tuberculosis, and who has been sufficiently fortunate to arrive at the advanced stage of convalescence, or even if he had been discharged as "cured," should always exercise care and should never venture too close or remain too long in the environment in which the

trouble originally developed. A. M. Holmes (Journal of the American Medical Association, October 22, 1904.)

TYPHOID FEVER, POLYURIA IN.

The urine during the course of typhoid fever is usually of high specific gravity and in amount below 1500 cubic centimeters in twenty-four hours. In convalescence the amount of urine may rise in a small percentage of cases to 2000, or even to 10,000 cubic centimeters in twenty-four hours. In very rare cases there may be at times polyuria of from 3000 to 8000 cubic centimeters in the twenty-four hours during the entire course of the disease. M. H. Fussell, H. S. Carmany, and H. Hudson (Medical News, September 17, 1904).

URÆMIA AND ECLAMPSIA, PATHOGENESIS OF.

It is probable that there are at work in the cerebrum, as well as throughout the system of uræmic subjects, at least one, and probably several toxic substances which exert their influence more or less locally on the cortex. It is equally certain that other portions of the brain than the cortex are also acted on, as in the production of coma, etc.

No small part in the production of the uræmic and eclamptic condition is played by intracranial pressure, due to a temporary excess of fluid, whether acting independently of or in conjunction with the toxic substances already mentioned. Lumbar punctures will at least temporarily relieve certain of the symptoms most readily ascribed to localized intracranial pressure, and in cases in which the pressure is the main factor drainage of the spinal canal may save life. The procedure, together with free bleeding, purging, and diuresis, should be added to the routine treatment of the condition.

Transfusion of normal salt solution by intravenous injection or hypodermoclysis, except in cases presenting anuria, or a greatly diminished urinary secretion, is contra-indicated as tending to increase the liability to saturation of the tissues.

The author states that the results of lumbar puncture in the three cases cited in his paper will not warrant the assumption that relief of intraspinal or intracranial pressure can alone be depended on to cure the uræmic or eclamptic condition, provided the toxic influence is the prominent one in the particular case. R. N. Willson (Journal of the American Medical Association, October 8, 1904).

VENEREAL WARTS.

Venereal warts, so called, are hypertrophies rather than tumors. They are inflammatory, being due to irritation. These papillary overgrowths constitute from 1 to 2 per cent. of all cases of genito-urinary disease; 60 per cent. are venereal and are due to acrid, irritating discharges; the remaining 40 per cent. are nonvenereal and are due to uncleanliness and maceration of their seat alone. They are not confined to mankind, dogs and horses also being subject to them. Ruminants are exempt. When small, the best treatment is palliative; when large, they are best removed surgically. Even then recurrences are frequent.

The term "papillofibroma" most correctly defines these interesting pathological new formations. The question as to whether or not venereal warts are infectious or contagious is, as yet, purely a speculative one. Numerous Gram-staining bacteria are seen imbedded in

the epithelium and in the lymph channels. The demonstration of micrococci and bacilli in these lesions suggests that the hypertrophy and hyperplasia of tissue may be produced by certain irritating products of these bacteria. C. W. G. Rohrer (American Journal of the Medical Sciences, November, 1904).

DR. MILLICAN AND THE ST. LOUIS MEDICAL REVIEW.

The Middle West has gained and the East has lost one of its most accomplished editors, Dr. Kenneth W. Millican. As the associate of a man whom every editor has learned to regard as an example, Dr. Frank P. Foster, in the scientific management of the New York Medical Journal, Dr. Millican has taken part in the great development of this excellent periodical. As success breeds success, so will Dr. Millican, who has recently assumed the editorship of the St. Louis Medical Review, lead this journal to success. We sincerely hope that he will receive the support to which his high accomplishments entitle him.

Books and Monographs Received.

The editor begs to acknowledge, with thanks, the receipt of the following books and monographs:—

The Cultivation of Mushrooms. By B. M. Duggar, United States Department of Agriculture, Washington, D. C. 1904.——Game Laws for 1904. A Summary of the Provisions Relating to Seasons, Shipment, Sale, and Licenses. By T. S. Palmer, Henry Oldys, and R. W. Williams, Jr., United States Department of Agriculture, Washington, D. C. 1904.——Crimson Clover Seed. United States Department of Agriculture, Washington, D. C. 1904.——Pig Management. By George M. Rommel, United States Department of Agriculture, Washington, D. C. 1904.——Officials Charged with the Enforcement of Food Laws in the United States and Canada. United States Department of Agriculture, Washington, D. C. 1904.——The Surgical Treatment of Bright's Disease. By George M. Edebohls, A.M., M.D., LL.D., New York City. Frank F. Lisiecki, Publisher, New York City. 1904.——Krankheiten und Ehe. Darstellung der Beziehungen zwischen Gesundheits—Störungen und Ehegemeinschaft. III Teil. New York: Rebman Company. 1904.——Self-propelled Vehicles. A Practical Treatise, with Illustrations. By J. E. Homans, A.M. Theo. Audel & Co. New York. 1904.——Annual Report of the Health Department of the City of Louisville, Ky., for the Fiscal Year ending August 31, 1904.——Multiple Malformations (Genito-urinary and Skeletal) Occurring on One Side of the Body in a Case of Atresia Ani. By G. H. Edington, Glasgow.——The Dangers of Copper as a Water Purifier. By A. Robin, M.D., Wilmington, Del. 1904.——Inorganic and Organic Iron in the Treatment of Anæmia. By William Murrell, M.D., F.R.C.P., London, Eng. 1904.——Physiological Effects of Phenalgin on Uterine Tissue. By Alice B. Condict, M.D., Ludhiana, India. 1904.——Suprapubic Enucleation of the Prostate. By H. O. Walker, Detroit, Mich. 1904.——The Folly of Meat-eating. By Otto Carqué.——Range Investigations in Arizona. By David Griffiths, United States Department of Agriculture, Washington, D. C. 1904.——Methods and Routes for Exporting Farm Products. By Edward G. Ward, Jr., United States Department of Agriculture, Washington, D. C. 1904.——Milk Fever: Its Simple and Successful Treatment. By John R. Mohler, V.M.D., United States Department of Agriculture, Washington, D. C. 1904.——Controlling the Boll Weevil in Cotton Seed and at Ginneries. By W. D. Hunter, United States Department of Agriculture, Washington, D. C. 1904.——The Cultivation of the Australian Wattle. By David G. Fairchild, United States Department of Agriculture, Washington, D. C. 1904.——The Commercial Status of Durum Wheat. By M. A. Carleton and J. S. Chamberlain, United States Department of Agriculture, Washington, D. C. 1904.——Arsenic in Papers and Fabrics. By J. K. Haywood and H. J. Warner, United States Department of Agriculture, Washington, D. C. 1904.——Anthracnose of the Pomelo. By H. Harold Hume. 1904.

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A BRIEF REVIEW OF THE PREVAILING THEORIES OF IMMUNITY.

IT is generally believed that the prevailing theories of immunity are extremely difficult to understand. This is due mainly to the fact that new technical terms have had to be introduced in order to avoid explanatory sentences each time a particular constituent is referred to. As each investigator has interpreted the functions of these various constituents in his own special way, he has deemed it necessary to rename the whole series, so that each substance actually found is now

the bearer of many distinguishing appellations—to say nothing of the substances hypothetically introduced in the processes, and also given various names. Bereft of these obscuring features, the three prevailing theories, however, lose their complexity in a great measure.

Metchnikoff's Phagocyte Theory.—Metchnikoff, who began his investigations in 1865, terms "phagocyte" any cell capable of incorporating bacteria and of destroying them by a process of digestion. Haeckel (1862) saw leucocytes ingest indigo; Recklinghausen (1863) noted that pus-cells ingulfed cinnabar grains; Cohnheim (1867) saw leucocytes plunge their pseudopodia through vascular stomata and thus leave the vessels to become pus-cells. Even Metchnikoff's antagonists have recognized that the leprosy bacillus, the gonococcus, and other microorganisms are always found in cells, while he has himself shown that they can ingest living anthrax bacilli. These organisms, having conquered the cells, passed out into the hanging drop, multiplied therein, and proved virulent on inoculation. As observed by Cantacuzène, anthrax bacilli injected in a vein of a rabbit's ear are destroyed in seven minutes in the liver, in eight minutes in the lungs, and in one hour in the spleen. The organisms that escape from one cell are seized by others, but if their multiplication is excessive they overpower the phagocytic leucocytes and invade the blood-stream.

Various observers, Pfeiffer, Buchner, and others, having demonstrated that the blood-serum and other body-fluids were likewise bactericidal, Metchnikoff ascribed this fact to the disintegration of phagocytes, the properties of these cells being thus imparted to the serum. As shown by Bordet and other French investigators, this property is due to two constituents of the plasma. The one (the specific immune body) circulates in the plasma, according to Metchnikoff, and resists a temperature as high as 100° C. The other, or "cytase," thought to be derived from disintegrated phagocytes, is destroyed by heating to 55° or 56° C. thirty minutes, and is considered by him as belonging to the category of trypsins.

Bulloch, in his review of the bacteriological side of the question of immunity for the section of pathology at the recent meeting of the British Medical Association, states that "thousands of facts point to the conclusion that our leucocytic-forming tissues are our great defensive organs against parasitic invasions," but that "the mystery is how the microbes are destroyed."

Buchner's Alexins, or the Humoral Theory.—The view that the serum is endowed with bactericidal powers has been ably defended by Pfeiffer, von Fodor, Nuttall, and others. Their labors led to a doctrine of which the late Prof. Hans Buchner was the main exponent. Both he and Hankin isolated substances which they termed "alexins," and to these bodies they ascribed the power to confer immunity. They were also thought by Buchner to be derived from leucocytes (oxyphil) and kindred cells. Laschtschenko having isolated them from living leucocytes, the bactericidal action was thought by Buchner to be due to a proteolytic enzyme, similar to the ordinary digestive ferments. The "alexins" were found to lose their bactericidal power, however, when exposed thirty minutes to a temperature of 55° C.

Buchner recognized Metchnikoff's doctrine only to a certain extent, the phagocytes being considered by him as mere scavengers capable of removing from the

blood various substances foreign to it, including bacteria weakened by the alexins. The cells were deemed incapable, however, of carrying on an active warfare against pathogenic micro-organisms in general. Grüber was also led by a large number of experiments to conclude that the actual destruction of bacteria in all animals, "whether actively or passively immunized" was due to Buchner's alexins, and that these alexins were "general protective substances entirely without specific action." According to Gruber, the bacterial cell walls were first made adhesive by the blood's agglutinins and thus became vulnerable to the destructive action of the alexins.

Buchner's alexins were soon found deficient in many particulars, but the many valuable paths his labors and those of pupils have opened have been utilized in the elaboration of other hypotheses.

Ehrlich's Side Chain Theory.—This theory, advanced by Ehrlich in 1897, aimed to harmonize the results so far reached in the study of natural and artificial immunity and particularly the formation and mode of action of the immunizing constituents of the blood-serum. Reduced to its simplest expression, Ehrlich's theory is, on the whole, not a complex one, and is based on recognized biological and chemical principles.

The body being composed of colonies of cells which differ from one another in their functional attributes, nerve-cells, muscle-cells, gland-cells, etc., we speak of the specific action of drugs, because each kind of cell has a special affinity for certain drugs. Thus, the cerebro-spinal motor cells have affinity for strychnine, the cardiac muscle-cells for digitalis, the sweat and salivary gland-cells for jaborandi, etc. Now, toxins differ in no way from remedies in this particular; they also are specific owing to their cellular affinities, toxins being also taken up by specific cells. This specific action of toxins represents the foundation upon which Ehrlich's theory is poised.

The theory itself is based upon the mechanism of cell-nutrition in its relations to the mode of production of specific antitoxins, or bactericidal and antitoxic sera.

The complexity of cellular protoplasm is well known to biologists. Ehrlich assumes that each cell contains an active central nucleus *(leistungs Kern)* and of groups of molecules, or "side chains." These outer, or extranuclear, groups constitute a cardinal feature of the entire scheme, since each of them has for its function to receive (hence the term *receptor* given it by Ehrlich) the molecules of food-stuffs which perpetuate the cell's existence. These molecules Ehrlich terms *haptophores* (ἅπτειν, to touch; φέρειν, to bring) owing to their identity as extrinsic carriers. A cell's nutrition is thus carried on through the affinity its "receptors," or "side chains," have for its haptophores.

Unfortunately, the receptors do not combine with these nutrient substances only: their affinity extends to substances which are, in a measure, their chemical analogues and which may include harmful bodies. Thus, a poison, a toxin, or a venom may contain the same elements and the same number of them as a nutrient molecule, or haptophore, the only difference between the latter and the pathogenic molecule being a different arrangement of their respective atoms (isomerism). The formula of turpentine, for instance, is $C_{10}H_{16}$ while that of oil of lemons is also $C_{10}H_{16}$; and yet their properties are quite dissimilar. The same may be said of ethyl formate, methyl acetate, and propionic acid, all of which have a molecular

weight of 74, and the same formula,—*i.e.*, $C_3H_6O_2$. This makes it possible for a cell to take up (combined with its nutrient haptophores) any number of isomeric nonnutritious bodies, and when one of these happens to be a toxic—thus forming what Ehrlich terms a *toxo*phore—the latter combines with the cell and, if sufficiently active qualitatively and quantitatively, may act destructively upon it.

If the toxic is not sufficiently active to destroy the cell or inhibit its functions, the latter seeks not only to rid itself of the poison, but also to protect itself against further aggressions from this poison and its isomers. Intoxication being due to a toxin, for instance, the toxin group of the haptophoric molecule attaches itself to the receptors and then reacts actively upon the cell proper. The receptors themselves being destroyed, the cell (in keeping with Weigert's theory of overproduction) not only replaces them by reproduction, but the process is so active that many more receptors are created than are required by the cell itself, and they accumulate in the blood and lymph. A very prominent feature of Ehrlich's theory appears in this connection, viz.: these surplus receptors preserve their affinity for their specific haptophores and therefore for any isomeric toxin that may combine with it. The receptors thus become the cell's protectors, since they capture, as it were, and hold the toxin before it can at all reach the cell proper, thus immunizing the latter against the poison. Diphtheria toxin, for instance, by exciting the cells for which it has specific affinity, causes these cells to liberate receptors in large quantities; these by at once combining with the rest of the toxin in the blood-stream curtail its morbid effects. *Antitoxin,* according to Ehrlich, owes its curative properties to the receptors (side chains) it contains.

The element of specificity, so evident in all immunizing processes, is easily explained by Ehrlich's conception. As the different cell-colonies constitute clearly defined and autonomous groups, each of which reacts under the influence of poisons which affect none of the other groups, a poison can only cause the production of one kind of receptors, and these receptors injected into another animal can only neutralize that one poison and its isomers. Again, the body being only vulnerable to the toxins with which its cells' haptophores can combine, it follows that Ehrlich's theory covers all diseases caused by toxins and the processes through which the body acquires immunity against them.

The destruction of the more solid pathogenic agents such as bacteria, yeast-cells, worn-out blood-cells, tissue *débris,* and other cellular structures require the aid of additional factors, *i.e.*, cell-"poisoning" or "killing" agents, which Ehrlich has termed *cytotoxins* or *lysins.* These bodies, according to Ehrlich, not only appear in the blood when useless (and therefore harmful) cellular materials are to be dissolved, but each body is essentially specific as a solvent. Thus, when blood-cells are to be destroyed, there appear in the blood-plasma *hæmo*lysins; when muscle-cells, *myo*lysins; when nerve-cells, *neuro*lysins; when kidney-cells, *nephro*toxins, etc. Each of these is active only in the case of one particular kind of cell and in that of no other. Bacteria, introduced into the circulation, also provoke the elaboration of specific antibodies, *bacterio*lysins, and blood-plasma containing one of these is active only upon the bacillus which, injected into animals, caused its appearance in the blood. Serum obtained by injecting the typhoid bacillus, for instance, will destroy typhoid germs, but it will not dissolve the diphtheria bacillus or any other germ.

Two bodies or substances have been shown experimentally to be necessary in the process, in addition to the cellular material acted upon. One of these bodies is not affected by exposure to relatively high temperatures and has been termed *immune body* by Ehrlich, while the other, the *complement,* is destroyed when kept at a temperature of 55° C. thirty minutes. The immune body's rôle is to attach itself to the cells or bacteria to be dissolved and to act as a link (hence the name *amboceptor* also given it by Erhlich) between them and the complement, the latter having no affinity for the cellular elements. The complement being endowed, according to Ehrlich, with digestive powers, it is thus brought into contact with the cells and these are dissolved.

But how is the marked specificity witnessed in the destruction of these bacteria and other cellular *detritus* accounted for in this process? Ehrlich ascribes it exclusively to the immune body. Thus, if cholera bacilli be introduced into an animal the immune body that will appear in the serum obtained from that animal will attach itself to cholera bacilli only. This is because the combining group of the immune body thus obtained will fit only that particular species of micro-organism as a key does its lock. And this applies to all kinds of bacteria and cellular elements to be disposed of in the body fluids: they represent as many different locks, each of which requires its own particular key. Briefly, while the complement is the solvent, it cannot act upon bacteria or other cellular elements without being linked to them by one of the *great many* immune bodies which, according to Ehrlich and Morgenroth, may occur in the blood-serum.

Charles E. de M. Sajous.

Cyclopædia of Current Literature.

ADENOIDS IN RELATION TO EAR TROUBLES.

Grazzi (La Clin. Mod., An. 9, Nos. 4, 5, 6, 7) says the percentage of adenoid cases seems to differ widely in different countries. Among his patients suffering from ear, nose, or throat trouble the author found 6 per cent. suffered from adenoids. In the etiology, heredity seems to exercise a marked influence; dampness *per se* does not seem to play a very important part; bad hygienic surroundings, tuberculosis, and hereditary syphilis, rickets, zymotic diseases, each have a more or less marked influence. They have also been attributed to degenerative processes in the nervous system, to the disturbances of the thyroid, etc. Of all the symptoms due or attributed to adenoids, the most important are those relating to the ear; for example, deafness, otorrhœa. In children the commonest type is that of catarrhal otitis; in adults, hyperplastic sclerosing otitis. Skeletal alterations in the upper jaw are often present as a secondary result. The first deleterious effects of adenoids on the auditory apparatus usually start in the middle ear and afterward on the internal, which may be damaged via the blood-vessels or the lymphatics. Earache, again, may be due to adenoids.

Where surgical interference is postponed, palliative treatment by nasal douches and politzerizing may be tried.

For removal the author prefers local cocaine anæsthesia (10 to 20 per cent.) or general anæsthesia by ethylic bromide. The postoperative treatment is purely hygienic (keeping to the house and closing the nostrils with sterile gauze). The operation is contra-indicated by the presence of hæmophilias, any marked dyscrasia, epidemic disease, or tuberculosis. (British Medical Journal, November 12, 1904.)

APPENDICITIS, CHIEF PREDISPOSING CAUSE OF.

The majority of cases of appendicitis occur between the ages of 10 and 30 (about three-fourths), and constipation favors, according to many authors, the development of the disease. According to the writer, the disease is directly referable to the following sequence of intestinal conditions: The accumulation of gases below the ileo-cæcal valve and their voluntary retention; the ensuing distension of the cæcum and dilatation in various degrees of the cæco-appendicular orifice; the entrance into the appendix of larger fæcal masses than are readily expelled; the interference with the vascular circulation and resulting erosion of the mucosa of the appendix with subsequent infection. Portions of intestines, about fifty centimeters in length, including cæcum and appendix, were removed from cadavers, and after the colonic end was ligated small shot, peas, and beans were introduced through the open end, and the bowel manipulated so as to imitate peristalsis. None of the small bodies entered the appendiceal cavity, although the appendix was held at the most pendant point. Then the bowel, still containing those substances, was inflated, the same process of rolling repeated, with the result that in all the experiments, with one exception (where only one small shot entered owing to an hypertrophied appendiceal wall and a constricted lumen) the appendix was filled with shot, and in two cases peas of medium size also gained entrance. Ten such experiments were carried out. It may be added that the appendix was readily ballooned during the process of inflation. It is reasonable to suppose that similar phenomena might occur in the living. G. Rubin (Journal of the American Medical Association, October 29, 1904).

BLOOD-PRESSURE, THE VASOMOTOR FACTOR IN THE CLINICAL MEASUREMENT OF.

Blood-pressure is an expression of action of two chief factors: ventricular force and vasoconstriction. The inhalation of amyl nitrite will dissipate the vasoconstrictor factor and bring into play the ventricular force, which is the real factor to be encouraged in a failing heart. The vasoconstrictor factor may and does compensate ventricular inadequacy, for it is essential in most cardio-arterial diseases for the blood-pressure to be maintained to afford better nutrition for the heart and to promote arterial elasticity as a means of establishing the circulation of the blood.

The recognition of the ventricular and vasomotor factors in blood-pressure serves as a clue in the correct administration of cardiotonics. In the individual endowed with cardiac health the removal of the vasomotor factor causes an increase in blood-pressure, whereas the converse condition causes the latter to fall, and the degree of reduction is proportional to the degree of cardiac enfeeblement.

The execution of the foregoing manœuvres in estimating heart-vigor is by no means comparable to a correct method

of cardiac auscultation, although the latter method does not indicate how much of the cardiac force may be attributed to increased peripheral resistance. Cardiac auscultation in conjunction with the sphygmomanometer and the inhalation of amyl nitrite constitute the ideal methods for eliciting the real condition of things.

In estimating blood-pressure the sphygmomanometer only gauges the force of the left ventricle, and to determine the sufficiency of the right ventricle auscultation of the pulmonic sounds and a physical examination of the lungs are alone adequate.

There are certain individuals in whom one finds high blood-pressure without cardiac weakness, and after inhalation of amyl nitrite the blood-pressure remains the same. Such cases are associated with traces of albumin in the urine, which is of low specific gravity, and are practically instances of incipient chronic interstitial nephritis.

It is evident that persistent high blood-pressure dependent on augmented tonus of the vasomotor center is a cogent etiological factor in arteriosclerosis independent of any other cause, and is merely the reaction of arterial overwork.

Just as myocardial sufficiency is tested by counting the pulse, first in the erect and then in the recumbent posture, and noting that, the less pronounced pulse retardation is in recumbency, the greater the degree of heart insufficiency, so may vasomotor sufficiency be determined. Normally, there is a postural variation in blood-pressure. In the erect posture blood-pressure rises owing to compensatory arteriole contraction, and this difference between recumbency and standing varies between 15 and 30 millimeters, according to the author's measurements with the Riva-Rocci instrument. In vasomotor insufficiency the postural variations are reversed, and this is especially true in neurasthenia, notably the angiopathic form. The bromides, carried to their physiological effects, will cause high blood-pressure to fall if dependent on augmented tonus of the vasomotor center. Albert Abrams (American Journal of the Medical Sciences, November, 1904).

BRIGHT'S DISEASE.

The writer shows that there are about twice as many deaths from Bright's disease in Galveston as in the majority of large American cities. Many theories have been advanced to account for this condition of affairs, and the author has undertaken to investigate those which hold the climate responsible. Some experiments he has conducted seem to justify the conclusion that one takes more fluid as drink in a moist climate and passes less urine than in a dry one. The author does not believe that this fact has any special bearing on the etiology of Bright's disease. He inclines to the belief that there are two causes which explain the prevalence of Bright's disease in Galveston more plausibly than any of the explanations usually given: (1) the excessive use of meats in a climate in which proteids cannot be so readily metabolized as in a colder climate; and (2) the failure to recognize and properly manage acute infections. W. S. Carter (Medical News, November 12, 1904).

CANCER OF THE STOMACH, DIAGNOSIS OF.

What the practitioner needs is a recognition and sound interpretation of the symptoms to be observed during the initial stages of the disorder, by the aid of which the surgeons may be enabled to

take the active measures at a time when the inherent conditions are still, and in an overwhelmingly hopeful manner, favoring curative success. We are confronted, however, by the dilemma that if we wait until the diagnosis is reasonably certain, especially if we delay until a palpable tumor exists, it is too late to expect cure from operation. A reliable diagnosis of cancer of the stomach in the incipient stage, in which it is susceptible of successful operative treatment, is with present knowledge a sheer impossibility, and therefore we must make up our minds to submit the patient to the risk of an operation before the diagnosis is firmly established. The author concludes that when in a clearly progressive case of an intractable disorder of the stomach the local and general symptoms, conscientiously collected and weighed, strongly justify the suspicion of cancer, diagnostic laparotomy should be considered not only admissible, but obligatory. A. G. Gerster (Medical Record, October 29, 1904).

CATARRHAL DEAFNESS, CHRONIC.

The author has obtained good results from the use of the hot water douche in the treatment of chronic catarrhal deafness. The technique of the douche is as follows: A specially small tip or a straight glass medicine dropper is inserted into the tube of a fountain syringe, the patient being instructed how to hold the tip and how deep to insert it. The fountain bag is hung from eighteen to twenty-four inches above the ear. If the tip is small and the bag not too high, 2 quarts of water will run for about ten minutes and will remain hot enough through that time. Allowance must always be made for the cooling of the water in passing through the tube, so that the water in the bag itself must be too hot for comfort. If the matter is fully explained to the patient he will soon learn to make the proper allowance. G. P. Head (Journal of the American Medical Association, November 12, 1904).

CEREBRAL LOCALIZATION.

In operating for prefrontal tumors higher psychical symptoms should be the chief guide, and, in the case of the left hemisphere, agraphia and aphasia, the opening in such cases always being anterior to the main extent of the motor region.

In all operations for brain tumors with dominating motor symptoms, the opening of the skull should be made so that the correlative brain exposure will be three-fourths in front and one-fourth behind the central fissure, the base of the flap being perpendicular to the lower end of that fissure. In operations for tumors having symptom-complexes in which disorders of the muscular sense and astereognosis are dominant, the opening in the skull should be so made that the cerebral exposure will be three-fourths behind and one-fourth in front of the central fissure.

When the oculomotor symptoms, such as abducens paresis, lid drooping, and nystagmoid movements are present with symptoms pointing to the parietal lobe, the operation should be parietal or parieto-occipital, it being recognized that the interference with eye movements is not basal, but probably due to disturbance of the visual motor cortex. When object blindness in any of its forms is the central feature of the symptomatology, operation should be done with a view of exposing the lower temporo-occipital convolutions.

When relative or absolute hemianopsia or hemiachromatopsia or both are the most important symptoms, the operation

should be with the view if possible of reaching the mesotentorial surfaces of the occipital lobe. When forms of literal or verbal blindness are the central features of the syndrome, the angular gyrus should be the focus of the exposure. Similarly, when verbal deafness is the deciding symptom the posterior extremities of the first and second temporal convolutions should be the objective points, while for uncomplicated verbal amnesia the midtemporal region should be exposed, and for note deafness, or amnesia, the anterior temporal region. C. K. Mills (St. Louis Medical and Surgical Journal, November, 1904).

CHORIO-EPITHELIOMA MALIGNUM, PRIMARY, OUTSIDE OF THE PLACENTAL SITE.

Twenty-one cases of unmistakable chorio-epitheliomatous tumors have been observed in locations remote from the placental site. No direct anatomical connection between the tumor and the placental site was demonstrable. These tumors have arisen while a fœtus or hydatidiform mole was *in situ*, and at varying intervals of days and years following abortions, labors, and the expulsion of hydatidiform moles. The vagina was believed to be the primary seat of the tumor in 50 per cent. of the cases; the uterine musculature in 15 per cent.; the cervix, brain, kidney, and labium, each 5 per cent. It was not always possible to identify the primary growth. In all cases the growth presented the appearance of blood-coagula, and were only identified with certainty by the aid of the microscope.

Nothing definite is known of the histogenesis. The degree of resistance of the invaded tissues probably determines the malignancy of these growths. Microscopical examination of the tumor will demonstrate the presence of chorionic tissue, but will determine nothing as to the malignancy of the growth.

In primary vaginal and cervical growths it has been possible to make a highly probable diagnosis by a consideration of the history of the previous pregnancy, the occurrence of hæmorrhage from the vagina, and by inspection of the tumor. The positive diagnosis was reserved for the microscope.

Sixty per cent. of the cases occurred between the ages of 30 and 41. The earliest was at 20 years of age, the oldest at 50. Hæmorrhage is the one constant symptom in the growths of the vagina and cervix, and should always arouse suspicion when occurring weeks, months, or years after the termination of pregnancy, abortion, or hydatidiform mole. The possibility of these growths occurring during the course of pregnancy must be borne in mind.

After the recognition of the primary growth outside of the placental site, an exploratory curettage is done and the scrapings examined by the microscope. If syncytial tissue is recognized, the uterus should be removed. Inasmuch as it is impossible to judge the malignancy of the scrapings from the uterus in such cases, it would seem wise to anticipate the existence of a malignant growth by removing the uterus. The malignancy of these growths can only be determined by the remote results. If the individual makes a permanent recovery after the removal of the primary growth, we are at a loss to know whether the growth was malignant.

It is necessary to give a guarded prognosis in all cases, because of the uncertainty as to the existence of metastatic growths, and the inability to differentiate a benign from a malignant growth. Palmer Findley (Journal of the Amer-

ical Medical Association, November 5, 1904).

CLUBFOOT, EARLY TREATMENT OF.

Most writers on this subject advise beginning treatment as early as possible: at birth or soon after. The author differs from this view and doubts the advisability of instituting treatment at this early stage, and prefers waiting until the child is able to walk. Appreciating the ossification periods and all the arguments advanced in favor of early treatment, yet he is not convinced that enough is gained to justify the continued interference with the nutrition of the child at the time when every effort must be directed to perfect the infant feeding and hygiene. The excoriations, strained tendons and ligaments must surely inhibit digestion, and if digestion is inhibited, nutrition cannot satisfactorily proceed. Although he declines to treat clubfoot in young infants until they are able to walk, he does not infer that nothing ought to be done during the first eighteen months. The severe forms of treatment should be mitigated, as it is well known that a large number of cases of moderately high degree are corrected by the hand of the mother. This good work should merely be supplemented by simpler forms of apparatus. V. P. Gibney (American Medicine, October 29, 1904).

COAGULATING POWER OF THE BLOOD, SIMPLE MODE OF DETERMINING THE.

Biffi (Cronica Medica, Peru, vol. xx, No. 372) gives an illustration of a simple apparatus which consists of an ordinary test tube, about 20 to 25 centimeters long and 4 centimeters in diameter. The stopper of the tube has two openings; one holds a thermometer which projects nearly to the center of the tube. A glass rod passes through the other hole, just projecting into the tube, but carrying a platinum wire 0.5 millimeter thick and 10 centimeters long. This wire is bent into five small, round loops, each 3 to 4 millimeters in diameter. This takes up the wire so that the lower end reaches downward only a little below the thermometer, each just above the middle of the tube, which is filled half full of water. A drop of blood is drawn from the finger, and each of the five loops is touched to the blood, which rapidly spreads out and fills each loop. The stopper is then replaced in the test tube and the time noted, the temperature of the tube being kept at 68° to 77° F. At certain intervals the glass rod is pushed downward through the stopper, just far enough to bring one of the loops under the surface of the water. If the blood has not coagulated it diffuses into the water. Again the rod is pushed down after a similar interval, and so on, until the blood has completely coagulated, when it no longer diffuses, but shows as a firm, round disc in the loop below the surface of the water. In normal conditions coagulation is complete in seven to ten minutes. Biffi has compared the findings with those of the more complicated apparatus for determining the coagulability of the blood, and found that they paralleled each other with great precision. He calls the instrument the hæmogelometer. (Journal of the American Medical Association, November 19, 1904.)

CYSTINURIA.

In the human being the administration of cystin by the mouth does not lead to a material increase in the elimination of the neutral sulphur, but 53 per cent. approximately appears in completely oxidized form. A portion of the ingested

cystin is eliminated through other channels. The administration of cholalic acid *per se* causes a moderate decrease in the amount of urinary sulphur, which largely affects the neutral sulphur. The administration of cholalic acid will prevent the oxidation to urinary sulphur of a very considerable portion of cystin administered at the same time.

In view of v. Bergmann's experiments and personal studies, the authors conclude that a certain amount of the cystin liberated during the normal metabolism of the body is eliminated in the bile in combination with cholalic acid as taurocholic acid, while the remainder appears in the urine in completely oxidized form. C. E. Simon and D. G. J. Campbell (Johns Hopkins Hospital Bulletin, November, 1904).

DIGESTION, MIXTURE OF DIGESTIVE JUICES WITH BILE IN.

Boldyrieff (Roussky Vratch, October 2, 1904) found, as the result of a long series of experiments on dogs, that if the diet contains a great deal of fat, if there is an excess of acids in the stomach, or if the animal is allowed to starve, a stream, consisting of a mixture of pancreatic and intestinal juices with bile, enters the stomach. This fact may probably be utilized for obtaining pancreatic and intestinal juices in man for the purpose of diagnosis. When fatty food is ingested digestion probably takes place largely through the aid of the ferments of the pancreatic juice. When examining the stomach contents or specimens of vomited matter, it should always be remembered that pancreatic and intestinal juices may be mixed with the sample under consideration. The absence of free hydrochloric acid and of pepsin ferment in the stomach contents may be noted even in perfectly healthy stomachs after test meals, provided the hydrochloric acid has been neutralized completely by the alkalies of the pancreatic juice, and the pepsin ferment has been hampered in its action by the presence of bile. In investigating the motility of the stomach by means of test meals, the possibility of the entrance of pancreatic and intestinal juice and of bile into the stomach must be taken into consideration, thus increasing the amount of fluids found therein after a certain time. In examining the gastric motility by means of salol it will be necessary hereafter to take into account the decomposition of salol by the pancreatic juice in the stomach proper. None of the existing hypotheses as to the reason why the stomach does not digest itself hold good, because none takes account of the entrance of pancreatic and intestinal juices into the stomach. Gastric digestion is by no means so simple as has been hitherto supposed. (New York Medical Journal and Philadelphia Medical Journal, November 12, 1904.)

DIGITALIS AS CAUSE OF CARDIAC DISSOCIATION.

The graphic tracings and postmortem findings of a case are given to show the danger of routine treatment of heart affections with digitalis. The clinical diagnosis was rheumatic endocarditis and endarteritis on an alcoholic basis. After each dose of digitalis the action of the right heart became much stronger, while that of the left heart became weaker. Such a disturbance in the coordination could be explained only by changes in the right coronary artery which prevented it from contracting. The right ventricle was stimulated to excessive action. The left ventricle was unable to take charge of all the blood delivered by the right, and dyspnœa and

œdema indicated the disturbed compensation. These phenomena could be explained only by assuming that digitalis had an exaggerated action on the right heart, which would be the consequence of dilatation of the right coronary. The clinical assumption that the right coronary was dilated was confirmed by the postmortem findings of sclerosis and a lumen 14 millimeters in diameter, while that of the left coronary was only 8 millimeters. Pharmacological dissociation, resulting from degeneration of the right coronary artery, has been observed by the writer in two previous cases. The curves show the weak pulsation of the left ventricle and the excessive action of the right. The duplicated pulse in the jugular vein was probably attributable to an accessory contraction of the right auricle. Dissociation of the heart action can be studied at the bedside more instructively than on animals' hearts. T. von Openchowski (Berliner klinische Wochenschrift, vol. xli, No. 40; from Journal of the American Medical Association, November 5, 1904).

DYSENTERIC DIARRHŒA IN INFANTS, ETIOLOGY OF.

Dr. H. Cooper Pattin, the medical officer of health of Norwich, has compiled some interesting statistics concerning the diet of infants who died from diarrhœal diseases in the area under his jurisdiction between August 1st and September 21st of this year. The investigations were made for the medical officer of health by a lady inspector who instituted a house-to-house visitation for the purpose of the inquiry. The number of cases included in Dr. Pattin's statistics only amount to 70, not a number from which any general deductions can be drawn, but the inquiry is of value as showing that in this case at least some relationship can be traced between improper methods of feeding and mortality from diarrhœal diseases among infants, thus corroborating the views expressed by the medical officers of health of Birmingham, Salford, Stockport, Southend, and of several other large centers of population. Of the 70 infants who died from causes referable to diarrhœa, only 7 were exclusively breast-fed, 19 were partly breast-fed and partly bottle-fed, while 44 were variously fed on boiled milk, boiled milk and barley water, and boiled milk with the addition of a patent food. Without statistics to show the relative proportions of infants who were fed from the breast and by means of artificial substitutes it is impossible to draw any trustworthy inference as to the general incidence of diarrhœal diseases in these two classes of infants. However, it is probable that in a borough of the character of Norwich a very considerable proportion of infants are breast-fed, and consequently it is reasonable to suppose that these statistics do actually support the view which Dr. Pattin evidently wishes to convey, namely: that the mortality of infants from diarrhœal causes is greater among bottle-fed than among breast-fed infants. These investigations further elicit the information that in 23 out of 44 bottle-fed cases the milk was kept in the house over night and that in practically every instance the milk was preserved in uncovered receptacles in the living room. In 51 instances insanitary feeding bottles with long India rubber tubes were employed. These revelations disclose a most deplorable state of ignorance on the part of the mothers in this district, but it is improbable, if similar careful observations were made in other urban districts, that a higher degree of enlightenment on the question involved would be discovered.

Investigations on the subject of the etiology of summer diarrhœa in England, although clearly pointing to the association of certain specific bacilli and the incidence of the symptoms, nevertheless leave a great number of points in doubt, and these hiatuses in our knowledge chiefly refer to the method of entrance of the bacillus itself and to the conditions favorable to its development in the intestinal tract. Other matters that are undecided in connection with this question are the natural distribution of the bacilli outside the body and the part which the atmosphere, the water, and the milk, respectively, play in their further dissemination. There is, indeed, evidence for believing that flies or other insects may be the media of infection. It is, however, by systematic inquiries, such as those carried out by the medical officer of health of Norwich, that we may expect ultimately to find an answer to such questions, and it is gratifying to see that many of our officers of health are taking up the question of infant feeding with zeal. In America the Rockefeller Institute for Medical Research has recently undertaken to support an investigation with a view to the elucidation of the bacteriology of summer diarrhœas in children and to defray the expense of testing upon infants suffering from one or another of the varieties of the disease the value of an antidysenteric serum obtained from horses which have been previously inoculated with the bacillus dysenteriæ. The report of the investigations which have so far been concluded has been edited by Dr. Simon Flexner and Dr. Emmett Holt. Its perusal leaves little doubt that most, if not all, serious dysenteric diarrhœas in infants are associated with, if not directly due to, the presence of either the Shiga or Flexner-Harris variety of the bacillus dysenteriæ; indeed, in the extended researches which have been conducted to test the value of the antidysenteric serum it has been assumed that this casual association does exist. Although the results so far obtained from the use of the antidysenteric serum do not permit of any very definite expression of opinion as to its therapeutic value or general trustworthiness, nevertheless they are sufficiently encouraging to justify a continuation of the researches on the line hitherto pursued by those investigators who have been working in co-operation with the Rockefeller Institute. Since at present there are no means at hand of clinically distinguishing the different varieties or, perhaps more correctly, strains of bacilli to which the infection in any individual case may be due, it has been found advisable to employ a polyvalent serum obtained from animals immunized against the two more definite types so far recognized, namely: the Shiga and the Flexner-Harris bacilli. For, although the Shiga serum is not without some effect in infections with the Flexner-Harris type of organism and *vice versa,* the effect is noticeably better when serum is employed which is possessed of a polyvalency.

With a view to the prevention of the disease this report from the Rockefeller Institute well deserves attention, since it establishes beyond a doubt that these dysenteric diarrhœas are contagious, although the degree of their contagion and the method of the distribution of the micro-organisms concerned are not yet proved. In summing up the clinical conclusions which may be drawn in reference to the question of infection, Dr. Holt says: "From present experience a high degree of contagion does not seem probable; the spreading takes place most likely through the discharges; this calls

attention to the necessity for disinfection and the closest attention to prevent contamination of food or water by persons handling the child's napkins." This recommendation is of special interest when taken in conjunction with Dr. Pattin's observations, namely: that in the great majority of fatal cases some gross act of negligence is usually discoverable, either as regards the manner in which the milk is handled and kept or as regards the use of unboiled water and insanitary feeding bottles. Acts of carelessness in respect of these details will probably be combined with carelessness in other directions—as, for instance, in the disposal of the ejecta and the washing of the napkins, so that in one and the same household all the conditions may conceivably be present for the transmission of infection material from the sick child to the otherwise healthy infant. The fact that the Shiga or Flexner-Harris bacillus appears to be a more or less normal constituent of the bacterial flora of the alimentary tract in infants may explain some of the cases of apparent autogenous origin. In these cases it may be assumed that the natural powers of resistance have been reduced to the danger point by various debilitating conditions. Such a view, however, does not in the least lessen the advisability of taking every precaution to prevent the further dissemination of the virus, and further it emphasizes the necessity for maintaining the powers of resistance of the infant at the highest pitch possible by the best methods of feeding. Editorial (Lancet, November 5, 1904).

ELECTROTHERAPEUTICS IN CHRONIC MALADIES.

Since becoming acquainted with the sinusoidal current, the author has found little use for the faradic current, which is painful, and, while possessing no special merits to recommend it, is inferior in every way to the rapid sinusoidal current as a curative agent.

Electricity properly applied is capable of accomplishing wonderful things therapeutically, both when applied exclusively to conditions in which it is specially adapted and in conjunction with other measures in conditions in which it is a useful supplementary remedy. The great merit of electricity as a curative agent lies in the fact that it is a physiological remedy. As such it belongs to a family of noble remedies which is in recent times rapidly coming into better recognition: remedies which utilize the great forces of Nature, those which are active in the production and maintenance of living beings. None of these great natural agents, heat, light, electricity, etc., should be employed exclusively. The proper correlation of these physiological agents in such a way as to give to the sick man the best possible chance for the recovery of health constitutes the true art and science of rational medicine. J. H. Kellogg (Modern Medicine, November, 1904).

ERYSIPELAS, JOINT COMPLICATIONS OF.

One not infrequently sees an arthritis develop during the progress, and especially toward the end, of erysipelas, to which process little attention has been given up to the present time. However, in 1901 two theses were published, respectively, in Lyons and in Paris, by Dr. Jorrot and Dr. Baude, in which a very complete study of the subject has been made.

Jorrot, in the first place, established two classes of articular complications of erysipelas, the first corresponding to what one calls infectious pseudorheumatism, while the second includes ar-

thropathies. The pseudorheumatism may present four different forms, namely: the arthralgic, plastic, serous polyarthritic, and suppurating arthritis. The first of these is the least important, but is the most frequent and is, so to speak, only transitory. It is characterized by excessively severe pain in some cases, accompanied by considerable difficulty in movement, but hardly ever leaves any deformity of the affected joint. The patient gets well in a few days without any apparent effect on the general health.

The clinical picture is simple. An erysipelas has run a normal evolution, the patient is convalescent, and desquamation is advanced, when suddenly the temperature goes up and several joints become tender and swollen. The patient is obliged to take to his bed. During the next day and those following the pain diminishes, while other joints become involved, only to return rapidly to their normal condition. In short, one is dealing with simple arthralgia without any importance other than the pain.

In the plastic form the process is an inflammation of the tendon sheaths, which is frequently met with in gonorrhœa and may be observed in erysipelas. From the beginning of the erysipelas, a continued sharp pain is present in a joint and the skin becomes hot and tense, although its color is not notably changed. The region is tumefied and the limb is held in a vicious attitude that cannot be corrected without causing intolerable suffering. These symptoms generally run their course without fever, in contradistinction to those of arthralgia, which are nearly always accompanied with a high temperature. From recorded cases it may be affirmed without absolute certainty that one is dealing with an erysipelatous pseudorheumatism, which, like the gonorrhœal type, does not limit itself to the joints, but invades the tendon sheaths as well. This form of arthritis may last a long time after the cure of the erysipelas; in one case reported it remained for two weeks, and in another nearly two months and a half. Its *début* is synchronous with that of the erysipelas and may even precede the latter. This form is quite susceptible to cure, with *restitutio ad integrum*, since the patients recover the use of the affected limb and present no deformity.

Serous polyarthritis is met with in from 1 to 2 per cent. of the cases. The date of the onset of the process is variable, but in the cases collected by Jorrot it was between the fourth and the eleventh day after the appearance of the skin lesions, more frequently at the tenth or eleventh day and coinciding with the desquamation. This form appears to prefer the large joints, such as the knee, elbow, and wrist, but it may also involve the smaller ones. The temperature varies betwen 102° and 104° F. The color of the skin does not change in any marked degree; it is tense, hot, and smooth. A slight tumefaction of the joint occurs, and sometimes palpation reveals an accumulation of fluid in the joint. Tumefaction and pain appear to be the two most important diagnostic elements. The latter is usually not very intense, and consists in a feeling of constraint and functional impotence of the joint. This variety of arthritis is of short duration; in two or three days the fluid collection disappears, but the patient is still troubled by arthralgia of the neighboring joints, preceding or accompanying the polyarthritic. The heart is rarely involved, but it may be the seat of pain, as commonly occurs in other types of generalized erythema.

Purulent arthritis is quite frequent, but it possesses all the characters of a

true infectious type. It appears during the progress of or convalescence from erysipelas and is accompanied by serious phenomena, such as high temperature, gastric disturbance, typhoid tongue, etc. It appears from the reported cases that the localization of this form of arthritis is nearly always the same. In facial erysipelas the knee is the joint usually involved. Several joints may be attacked at the same time, and in order of frequency one finds the shoulder, the radiocarpal, and the tibio-tarsal joints. This form of arthritis is, without any doubt, one of the most serious complications of erysipelas, because its final outcome, even after surgical interference, is far from favorable. Gosselin has said that, like all infectious arthritides, the puerperal, for example, it produces serious changes in the joints and general phenomena quite severe enough to threaten the life of the patient.

Arthritis arising in a joint near an erysipelatous process in the skin often resembles the latter form. When the erysipelas is seated over a joint, a more or less abundant serous exudate may sometimes be seen to take place in the joint. It is often in very small amount, but it may be sufficient to distend the capsule considerably. In this case we have a hydrarthrosis. At other times only a plastic synovitis will be found, resulting in some stiffness of the joint; and last, suppuration constitutes a third complication,—the most important of all as regards the functions of the joint. As has been pointed out by Tillmann, this form of arthritis occurs early; that is to say, within a few days after the appearance of the erysipelas. The progress is most acute, with a character of special malignancy, and the joint may suppurate in its totality. The cartilage may be entirely destroyed, the synovial membrane presents vegetating granulations, and in ten days' time the joint is relaxed and crepitus is present. The surrounding soft structures, muscles and tendons, become involved in the suppuration, and purulent tracts form, with ultimate necrosis of the tendons.

Such are the articular complications of erysipelas. One point of considerable interest remains to be discussed; it relates to the relations existing between infectious rheumatism and acute articular rheumatism, especially concerning the serous polyarthritis of the third type here described. According to Richardière, who has more particularly studied the question, this type of arthritis, which has the characters of acute articular rheumatism, is in reality under the subjection of this disease; they have only occasional relations with erysipelas. They arise upon the occasion of this affection, as they might after exposure to cold or a traumatism. Erysipelas, as Charcot pointed out, simply wakes up the diathesis and determines one of its manifestations.

Another peculiar fact is that in all cases these arthritides have been controlled by sodium salicylate, and under the influence of this salt the pain disappears rapidly, the circumarticular and articular tumefaction subsides within one or two days, and the temperature drops to normal. The effect of the medicine is certain, because as soon as its use is stopped the joints again become involved.

This opinion has been the subject of much discussion, and even now it is difficult to pronounce upon its identity. At any rate, the reports of cases tend to show that medical treatment has a very marked influence on these polyarthritides and that the use of sodium salicylate, salol, salophen, or antipyrin is in-

dicated, although a close watch must be kept over the joint lesions in order to act surgically should articular suppuration arise. C. G. Cumston (New York Medical Journal and Philadelphia Medical Journal, November 5, 1904).

FRACTURE OF THE BASE OF THE SKULL.

From a study of the autopsy reports of 50 cases of basal fracture, the author concludes as follows: In the majority of the cases the basal fracture resulted from impact received in the horizontal plane of the skull, whether upon the frontal or the occipital region or upon the side of the head. While certain of the basal fractures extended from the vertex there was no suggestion of the *contrecoup* of earlier writers. The line of fracture tended to enter the fossa nearest the point of impact, and to extend in the general direction in which force was applied. The lines of fracture in traversing the base tended to follow lines of least resistance, and in 22 of the 50 cases these lines corresponded more or less accurately to those indicated by Rawling, but the exceptions were too marked and too constant to allow the establishment of fixed rules.

The sella Turcica was implicated in 36 per cent. of the fractures. The petro-occipital and masto-occipital sutures furnished common lines of least resistance. Fractures extending across the base tended to run parallel to the petrous portion of the temporal bone and through the sella Turcica. Certain blows on the occiput tended to cause a line of fracture extending to the jugular foramen or across the petrous bone. The portion of the petrous bone containing the auditory apparatus showed itself peculiarly liable to fracture, more often transversely than longitudinally.

In 7 cases (14 per cent.) the fracture was limited to the base after vault impact in the horizontal plane. Neither Rawling's theory of transmitted force nor the theory of bursting fracture of von Wahl and others suffices alone to explain these cases. The results of experiments with bodies of simpler structure would suggest that the bursting principle predominates in pure compression of the skull, and the principle of transmitted force in case of blows, while both play important parts in case of falls.

The orbital foramen was implicated in 21.4 per cent. of the cases of orbital fossa fracture. Inequality and immobility of pupils, or both, furnish the most frequent and unfavorable sign of fracture of the base. In the 44 cases in which the pupils were recorded, they were normal in only 13. Injury to the cilio-spinal tract in its intracranial course is a more probable cause of the Hutchinson pupil and the other pupillary changes than injury to the third nerve or to the cortex, though no single lesion explains all cases.

The reflexes may be lessened or lost in fracture of the base, as in any case of violent jarring of the brain. On the other hand, they may be increased even to spasticity, probably through direct pressure on the pyramidal tract as by hæmorrhage. It is probable that the initial result of the impact in all cases is a tendency toward lessening or loss of the reflexes.

Profuse and persistent bleeding from the ear does not suggest middle meningeal hæmorrhage. No middle meningeal hæmorrhage was found in the cases of profuse and persistent bleeding, and, conversely, hæmorrhage from this artery occurred eight times without and once with only slight bleeding from the ear. G. L. Walton (Annals of Surgery, November, 1904).

GASTRIC AND INTESTINAL ANASTOMOSES, THE USE OF THE SEGMENTED RING IN.

The process of repair is as rapid after use of the segmented ring as after a plain suture. The time required for the operation is, on the whole, less than that required for a straight intestinal suture. Certain objections, such as weight, ulcer, difficulty of passage, etc., inherent in other mechanical contrivances, are minimized by the ring. The analogy between the experimental and the human observations is so close as to show the propriety of the deductions made from the animal experiments. The employment of the ring in human beings is safe and satisfactory for all sutures. F. B. Harrington and A. H. Gould (Annals of Surgery, November, 1904).

GASTRIC ULCER, PERFORATING, OPERATIVE TREATMENT OF.

The main element in securing a favorable result in operations for perforated gastric ulcer is unquestionably an early diagnosis and a prompt resort to surgical treatment. The chief reliance should be placed on the location and severity of the pain, together with the boardlike hardness of the abdominal muscles, in determining the diagnosis. Considerable help is afforded in most cases by the previous history of dyspeptic symptoms. Not much dependence can be placed on the absence or otherwise of liver dullness. Only once in some half dozen cases has the writer noticed so much tympanites as to obscure the normal percussion sound over that organ. Neither can much help be derived from observing the presence or absence of shock. Usually, more or less will be met with at the outset, but this is not always the case. Some vomiting commonly occurs, and at times a little blood is found in the vomited matter. A. B. Atherton (Annals of Surgery, November, 1904).

GOUT, THERAPEUTICS OF.

The writer discusses three types: (1) the acute attack of gout; (2) subacute gout; (3) chronic gout. Colchicum and its active principles are the chief drugs. Granules of colchicine, 0.001 gram—four granules at the onset, or during twenty-four hours. The tincture of the seed or root is effective, but variable in strength. To obtain results, 40 to 60 drops a day in doses of 10 to 15 drops at a time is necessary, if a visceral manifestation preceded the articular attack or venal symptoms. The action of colchicum can be aided by local applications, and hot air or steam. Sodium salicylate is useful in subacute gout. In chronic gout, hygiene, regulation of life, and drugs are all equally important. In diet, red meats should be excluded. But two-thirds of the diet should be made up from white meats. Of drugs, strychnine and arsenic are valuable. Robin (Bulletin Générale de Thérapeutique, No. 16, 1904).

HAY FEVER, THE SITUATION AS REGARDS THE SERUM TREATMENTS OF.

The exasperating resistance to treatment of the disease commonly known as hay fever makes it one of the most interesting subjects to the practitioner. The great interest shown of late in the serum treatment and the present visit to this country of Dr. William Dunbar, who is a native of this country, and whose serum is being used so extensively for hay fever, make it of interest to review briefly some of the facts that have previously appeared.

The disease has been described under a variety of names: summer catarrh,

hay fever, hay asthma, pollen catarrh, rose cold, June cold, concert cold, railroad fever, sun fever, dust fever, autumnal catarrh, and peach cold. Many theories have been put forward to explain the phenomena of the affection. The pollen theory, especially supported by Blackley, was one of the earliest. The heat theory, the light theory, the nervous, and other theories are familiar to all. Gradually the view became widespread that at least two factors are concerned in the etiology: a predisposition and an exciting cause. The theory of a bacterial origin found many supporters. Dunbar began by searching for a causal bacterium, but in the course of his studies became convinced that the disease is not due to bacteria, but to the irritative effect of pollen on the mucous membrane of susceptible persons.

Dunbar, in several papers, has detailed the progress of his studies. Suffice it to say here that his experiments indicate that it is neither the mechanical action of the pollen grains themselves nor any oily or volatile constituent of them which sets up an attack, but, instead, some proteid constituent of the nature of a toxalbumin. Of the pollens prevalent at the time of the early summer catarrh, or hay fever proper, those of rye and maize contain the poison in largest quantities. In the autumnal catarrh of this country golden-rod (Solidago), ragweed (Ambrosia), and wormwood (Artemisia) have been held responsible. As little as $^1/_{40\,000}$ of a milligram of the rye-pollen toxin placed in the conjunctival sac will call forth in susceptible individuals a paroxysm of hay fever lasting several hours. This quantity of toxin corresponds to only two or three pollen granules. Dunbar asserts that, while the toxalbumin constantly calls forth an attack in susceptible persons, it is without effect when instilled into the eyes or placed on the nasal mucous membrane of nonsusceptible individuals. Liefman proved that during the hay fever period in Germany there is more than enough pollen in the air to account for the toxic effects on hay fever patients, his researches thus confirming the earlier ideas of Blackley. He has shown also that on days when hay fever patients suffer greatly there is more pollen in the air than on days when they are relatively free from symptoms.

Dunbar found on mixing the toxalbumin with the serum of animals which had been previously treated with pollen or the extracted poison that the former was rendered innocuous. Unlike diphtheria antitoxin, the hay fever serum is not to be used subcutaneously, for subcutaneous injections give rise to unpleasant symptoms: itching, swelling, and erythema. Experiments have shown that the local application of the serum to the irritated mucous membrane is more effective than its introduction hypodermically.

The serum has been patented under the name of "pollantin" in Germany, England, and the United States. To the liquid serum $^1/_4$ per cent. phenol is added, but this amount is not sufficient to delay bacterial growth, if the bottle has been opened and contaminated. Some people, too, have an idiosyncrasy for phenol, and cannot bear the application even of minute amounts. Instead of the pollantin liquid the substance is now supplied preferably in the form of pollantin powder, the latter being obtained by evaporating the serum to dryness, powdering it finely, and mixing it with a little milk sugar. It is maintained that the substance is en-

tirely harmless even in large doses. A single dose, it is emphasized, does not completely immunize the patient against all further attacks. On the contrary, during the hay fever season the treatment has to be resorted to frequently, best every morning, just before rising. Used in this way, it will, it is said, keep a patient free from attacks for several hours, sometimes for the whole day, even when he spends it in the open air.

This new method of treatment of hay fever originating in laboratory experiment, is rapidly being submitted to the test of clinical experience. In this country we have reports from Mayer, MacCoy, and Somers, and the articles of Bailey, Lockwood, Henderson, and Dupuy also deal with the subject. The most complete review of clinical work thus far is that of Lübbert and Prausnitz. They have collected some 222 cases of ordinary hay fever and some 63 of the autumnal form, 285 cases in all, which have been treated with the serum. Of the 222 ordinary hay fever cases, 127 are said to have yielded a favorable result, 71 a partly favorable result, and in 24 the result was negative. That is to say, in 57 per cent. of the cases marked relief was obtained; in 32 per cent. the relief was more or less marked, and in 11 per cent. no benefit was derived. Of the 63 cases of autumnal catarrh, 44 (or 70 per cent.) yielded positive results, 12 (or 19 per cent.) partly positive, and 7 (or 11 per cent.) negative. In view of the short time which has elapsed since this attempt at rational therapy has been begun, and considering the difficulty which physicians have in such a treatment in inducing patients to follow directions strictly, the results thus far gained must be regarded as favorable.

The whole question of the value of the treatment is as yet, however, in the experimental stage. In a disease like hay fever, where at least in a large majority of the cases an oversensitive nervous system plays an important rôle, the greatest care must be exercised, especially in the judgment of the effects of therapeutic measures. A much larger mass of clinical evidence must be awaited before the matter can positively be pronounced upon. The disease is so widespread, however, and measures which are purely suggestive are, as a rule, so short-lived that we can be tolerably sure in the course of the next few summers of arriving at definite conclusions regarding the efficacy of the serum treatment.

A word as to the commercial exploitation of the serum. Pollantin, as has been mentioned above, has been patented. Very vigorous business methods are being utilized to sell it. In Germany medical men think it no breach of medical ethics to patent a new remedy. Physicians feel differently about these matters in America. Should the serum treatment ultimately prove to be positively efficacious in the treatment of hay fever, it is highly desirable that it be furnished to the great host of sufferers at a nominal cost, and not for purely commercial gain. Editorial (Journal of the American Medical Association, October 15, 1904).

HEART AND STOMACH NEUROSES.

Schoen (Münchener medicinische Wochenschrift, vol. li, No. 40) some time ago announced that every case of unilateral headache which he has ever encountered was accompanied by some eye defect, and was permanently cured by correction of the latter. He now reports a number of cases of chronic stom-

ach or heart trouble which were likewise accompanied or rather preceded by an eye trouble, and were permanently cured by its correction. The eye trouble in all these cases was upward squint. These heart and stomach neuroses differ from the migraine in the respect that they occur only with upward squint, while the migraine is liable to accompany astigmatism and hypermyopia. The author has had more than a hundred patients with these rebellious heart and stomach neuroses cured by correction of the upward strabismus. Such subjects are peculiarly liable to suffer from seasickness and nausea in swinging. The symptoms implicate the vagus, especially the cases with retarded pulse, hyperacidity, and exaggerated salivary secretions. The subject has to make demands on a special innervation to combine the pictures seen with the two eyes and thus compensate the defect during his waking hours. This task becomes more and more laborious in time, and the fatigue experienced spreads to adjacent nerves. The overexertion of the innervation for accommodation induces headache, but the overexertion of the innervation of the elevator and its antagonist is transmitted to the vagus. The pulse returns to normal and the hyperacidity vanishes at one stroke after the correction, with the precision of a physiological or physical experiment. The patients usually came to the author after having passed from one physician to another. The diagnosis in the stomach cases had been chronic catarrh of the stomach, dilatation, hyperæsthesia, nervous dyspepsia, nervous gastric troubles, and even round ulcer (but without hæmorrhages). One doctor diagnosed one of the above, and the next, another affection, until all united in accepting a purely nervous origin for the trouble. The same is true of the heart symptoms. When asthenopic disturbances were noted they were unhesitatingly attributed to neurasthenia or the stomach trouble, when in reality the reverse was true—the entire symptom-complex was the result of the eye defect, and vanished on its correction. (Journal of the American Medical Association, November 26, 1904.)

HIP AND SHOULDER AMPUTATIONS.

Wyeth's method controls the circulation during amputations at the hip and shoulder absolutely, and is the best method devised where applicable. Drainage should not be used in amputations at the hip or shoulder when the operation is done through normal tissues. To secure perfect hæmostasis the wound should not be closed until the tourniquet has been entirely removed. Buried absorbable sutures and adhesive plaster should be used in preference to the through-and-through nonabsorbable sutures for closing the wound. Immediate operations in cases of injury and timely operations in cases of disease will materially reduce the death-rate that now obtains in amputations at the hip and shoulder. M. F. Porter (International Journal of Surgery, November, 1904).

INTESTINAL OBSTRUCTION.

The writer calls attention to the fact that too much stress has been hitherto laid on the mere removal of the mechanical stoppage and not enough on the evacuation of the putrid material which is killing the patient. The older method of emptying the bowel by colotomy is unsatisfactory, as the bowel is in a state of paresis or complete paralysis and expels its contents very slowly, so that until it is cleaned out the cause of the paralysis remains in great part. The best course in many of these cases, probably in all, that are still within the

reach of any operative procedure, is to resect the tract of paralyzed and distended bowel at once. This does not apply to recent cases where the bowel is not seriously damaged by the retained fæces and is manifestly sound at and above the seat of obstruction. The author does not establish drainage in most cases, but closes the abdomen at once unless there be general peritonitis, having a great belief in the power of the peritoneum to take care of itself. The after-treatment is of extreme importance. Patients in all instances sit up in bed from the first as much as possible, and only lie down for sleep, so as to overcome the tendency to hypostatic pneumonia. They should begin at once to take a mixture of 10 grains of carbonate of bismuth three times daily, which the author believes to be the best intestinal antiseptic. Albumin water, with 1 drachm of brandy, should be given from the first, by mouth, in small quantities, and nutrient enemata and instillation under the skin of normal saline solution or 5 per cent. solution of glucose is recommended as a routine procedure. Half a liter morning and evening may be given, if necesary. It is not well to check a diarrhœa, as this material must be evacuated before the patient is safe. Bismuth cleanses the gut and so arrests the diarrhœa. Cold sponging and warm drinks will take care of the possible temperature. If the fever is due to pulmonary emboli or pylephlebitis, the general strength should be sustained by the use of the usual stimulants. A. E. Barker (Lancet, September 17, 1904).

INTESTINAL OBSTRUCTION, POSTOPERATIVE.

The possibility of postoperative obstruction should be borne in mind in all abdominal operations, especially in conditions likely to result in extensive adhesions, *e.g.*, appendicitis with peritonitis; pyosalpingitis with pelvic peritonitis. All raw surfaces should be covered as much as possible with normal peritoneum, or, where this is not practicable, perhaps with cargile membrane, or carefully arranged omentum. Small incisions and the least possible manipulation and evisceration should be the rule. The cleansing of the peritoneum should be done rapidly and with the least possible trauma and handling of normal peritoneum. Flushing with hot saline solution is advisable where there is much foreign material to be removed. The smallest possible drains should be used, if any; cigarette drains are preferable to gauze, as they are less irritating to the surrounding peritoneum; cases of pyosalpingitis or pelvic peritonitis rarely require drainage, and, when necessary, drainage through the *cul-de-sac* can usually be employed. Diet and regulation of the bowels should be watched with the greatest care during the first few weeks of convalescence; attacks of gaseous indigestion with colicky pain should be regarded with suspicion and treated promptly and vigorously. Determined effort should be made to relieve early attacks of obstruction by enemata, position, gastric lavage, etc., and, if successful, patient should be kept on a scanty fluid diet for some time and watched most carefully for possible recurrence of symptoms. If palliative measures are unsuccessful after a few hours' trial, operation should be promptly resorted to. In cases occurring later than four to six weeks, palliative measures are less likely to be effective, and early operation is usually imperative. All patients who have been operated upon for intra-abdominal in-

flammatory troubles should be warned of the possibility of the occurrence of obstruction before leaving the care of the surgeon, impressed with the importance of avoiding indiscretions in diet and attacks of indigestion, and of seeking advice promptly if such attacks should occur. The operative procedure must be adapted to each individual case; the right Kammerer incision for cases following appendicitis with complete healing is often useful; the median incision, as a rule, for other conditions. Resection and end-to-end anastomosis should be preferred to enterostomy in the majority of cases where gangrene or sloughing of the gut wall demands one or the other. C. H. Peck (Annals of Surgery, October, 1904).

JOINTS, DISEASES OF THE, AND THEIR TREATMENT BY MASSAGE.

Massage is indicated in spontaneous or traumatic acute arthritis when attended by serous effusion, or serous effusion tinged with blood, or where a fibrous exudate having already at the outset a tendency to form more or less firm adhesions about the articular surfaces and false ankylosis. It yields rapid and positive results after the first *séance,* already the pain and tumefaction are often diminished, and absorption is started, and in a few days a permanent cure is arrived at. Massage, as regards sprains, cures sooner than any other method; consequently there is less chance for persistent organic changes and less chance for relapse, when one uses the limb. Even in tardy manifestations it gives excellent results. Chronic arthritis with serous or sero-fibrinous effusion, is well adapted to massage. Massage is only useful in articular rheumatism, when the joint presents definite symptoms and these remain there; it is useless, as in muscular rheumatism, when the pains are vague and erratic. In gout the author uses massage only when the attack has subsided and the arthritis, or tenosynovitis, or bursitis with effusion remains and shows only very little tendency to become absorbed. Gustaf Norstrom (New York Medical Journal and Philadelphia Medical Journal, October 29, 1904).

LARYNX, CANCER OF THE.

It is of the greatest importance that the diagnosis of laryngeal cancer be made at the earliest possible moment. For this purpose it is most essential that the still prevailing notion—viz.: that malignant disease of the larynx is from the first attended by all sorts of grave constitutional symptoms — be completely eradicated and that the attention of the general practitioner should again and again be drawn to the fact that there are no more promising cases for radical operation than those in which the disease is at first manifested by nothing else than by obstinate hoarseness, occurring, without any apparent cause, in middle-aged and elderly persons.

Clinical diagnosis arrived at from the history and subjective symptoms of the case, from laryngoscopic examination, from accessory circumstances of importance, such as the patient's age, etc., has reached a certain degree of perfection, and enables us in a good many cases to make a correct diagnosis at an early stage of the disease; it is, however, by no means absolutely perfect, and occasional mistakes occur even in the practice of those most experienced.

In these circumstances clinical diagnosis ought, whenever possible, to be confirmed before radical operation of any kind is undertaken, by the intralaryngeal removal and microscopical examination of a fragment or fragments of the new

growth. This, however, should only be done if the patient previously consents to immediate radical operation being undertaken in the event of the microscope confirming the clinical diagnosis. Should this be the case the practitioner's position will have been materially strengthened. The microscope, however, is by no means infallible in these cases. Should its evidence be negative or inconclusive, the intralaryngeal removal and microscopical examination of fragments should either be repeated, if necessary, several times, or, if the clinical symptoms do not warrant postponement, exploratory thyrotomy should be undertaken.

The intralaryngeal method is from its very nature unsuitable for the radical removal of malignant new growths of the larynx.

Subhyoid pharyngotomy, apart from being applicable in a very small number of cases only of malignant disease of the larynx, is still *sub judice* with regard to its advisability in such cases.

Thyrotomy, if undertaken in suitable cases, and at a sufficiently early period, and if performed on the modern lines which experience has shown to be successful, is a perfectly ideal operation in intrinsic cancer of the larynx.

Hemilaryngectomy comes into question only when it is found after opening the larynx that mere thyrotomy will not suffice. When performed it may be accompanied by removal of the tributary lymphatics, even if apparently not diseased.

Total laryngectomy should be exclusively reserved for extrinsic, and for those cases of intrinsic, cancer, in which both sides of the organ are effected, and in which the disease has proceeded too far to be eradicated by milder measures. When performed it should be accompanied by the removal of the laryngeal lymphatics on both sides of the neck. Sir Felix Semon (Medical Record, November 5, 1904).

MALARIA, PROPHYLAXIS OF.

Since it has been demonstrated that the malarial fevers are due to an animal parasite transmitted from one person to another through the intermediation of certain mosquitoes, it can be comprehended that the only connection between malaria and bad air resides in the fact that emanations from decomposing vegetable matter take place under conditions that favor the propagation of the intermediating mosquito. In view of the facts as they have been demonstrated, it should be scarcely, if at all, more difficult to eradicate malaria than it has been possible so to do with yellow fever in Havana. Indeed, the task should be even simpler, inasmuch as in quinine we possess a specific remedy against the disease that has also considerable prophylactic value.

The means of prevention based on the known facts must consist (1) in the vigorous treatment of all individuals suffering from malarial fevers, thus eliminating sources of infection; (2) in destruction of the parasite-bearing mosquitoes; and (3) in case of failure to destroy the mosquitoes, in protecting healthy persons from their bites. A most interesting discussion on this subject was held in the Section of Tropical Diseases at the meeting of the British Medical Association, recently held at Oxford, and participated in by a number of experts, who spoke authoritatively from personal observation.

Dr. J. W. W. Stephens (British Medical Journal, September 17, 1904) laid emphasis on the fact that only certain species of *Anopheles* acted as the intermediate host and carrier of the malarial

parasite, and that the species varies in different localities. In conformity with this fact, the measures to be employed for the eradication of the breeding places of the pathogenic mosquito will vary in accordance with the species and its individual habits. In contradiction of a somewhat prevalent fallacy Stephens and Christopher found that the normal flight of *Anopheles* is a matter of only some hundred yards and not miles; and the intensity of infection and the danger therefrom grow gradually less as the distance from the breeding grounds increases, disappearing ordinarily at a distance of about one mile.

The methods of prophylaxis to be enforced are (1) antilarval, (2) mechanical, (3) medicinal, and (4) segregatory. The first consists in systematic drainage, as a result of which the breeding places of the larvæ are removed. Petrolage, or the covering of the surface of collections of water with petroleum, can be considered only as a temporary expedient and not as an ultimate means of eradication. Mechanical prophylaxis consists in the use of wire screens, mosquito netting, veils, gloves, and similar means of preventing the access of mosquitoes to both the sick and the healthy. Medicinal prophylaxis consists in the administration of quinine in suitable dosage to individuals exposed to the danger of infection with malaria. Finally, separation of the sick from the well has been recommended in tropical countries, with the object of avoiding such exposure.

Only by the intelligent application of the foregoing measures is it possible to diminish on any large scale the prevalence of the malarial fevers and evidence is not wanting of their practical efficacy. Editorial (Journal of the American Medical Association, November 26, 1904).

MEASLES, SIGNS AND SYMPTOMS OF, IN RELATION TO DIAGNOSIS AND PROGNOSIS.

The writer gives the results of observations on 227 cases of measles, and calls attention to the importance of this dangerous disease, which is responsible for an annual mortality of 10,000 to 12,000 infants. The incubation period, as determined by tracing the source of infection definitely in 84 cases, varies between 6 and 18 days, the average being 11.2 days. The prodromal symptoms, usually stated to be pyrexia, cough, and coryza, also include others on which considerable stress is placed. Vomiting occurred in 65 per cent. of the cases during the invasion period of the disease. Diarrhœa was present in 28 per cent. Epistaxis was present in 10 instances. Laryngitis was present in 8.5 per cent. of cases. The writer lays particular stress on the subject of Koplik spots. In his series of cases 214 were examined particularly for this sign, which was present in 97.7 per cent. Many make mistakes in the recognition of these spots. Those which should be distrusted are spots the size of a pinhead or larger; those which appear to be part of the mucous membrane itself and not raised above it; spots which tend to coalesce; and spots on a normal mucous membrane devoid of any trace of hyperæmia. Their value as an aid to early diagnosis is lost in the case of young infants, as they are seldom found until the rash is present. H. Balme (Practitioner, October, 1904).

MUSIC AS A THERAPEUTIC AGENT.

Much assistance is in many instances to be derived from the intelligent use of music, either vocal or instrumental, as a therapeutic adjunct. Melancholia, insomnia, hysteria, family affliction, business reverses, delirium, pain, fatigue,

mental or physical, will all be helped by the beneficial influence of music, rightly used. As a postoperative measure it would have an undoubted influence for good in taking the patient's mind from his bodily distress. So also could "painless" dentistry be relieved of some of its pain and distress by the quieting influence of music, which would, as has been amply demonstrated, produce a pleasanter mental influence during the administration of nitrous oxide or other anæsthetic. A German writer recently stated that in a number of test cases in which music was provided during the administration of the anæsthetic, there was an absence of distress and resistance on the part of the patient; also an absence or reduction of the postoperative nausea under the same circumstances. To be advantageous the nature of the composition must be carefully selected with a view to the needs of the individual case, and the execution must be as nearly faultless as possible. F. S. Kennedy (Medical Record, October 29, 1904).

NASAL POLYPUS, SOME OBSERVATIONS ON THE MODE OF ORIGIN OF.

The author brings forward the following provisional conclusions for discussion and further investigation:—

Mucous polypi of the nose, in the majority of instances, are probably consequent upon, and certainly coincident with, inflammation of the mucous membrane of the nasal cavity. The primary mechanical process is a localized œdema of the inflamed mucous membrane, which œdema, on account of certain structural peculiarities of the lining membrane, does not, in the great majority of cases, develop in any intranasal area, but that of a portion of the middle turbinal and of the middle meatal regions. Analogous structural peculiarities are present in the mucous membrane of some of the accessory sinuses. The determining cause of the occurrence of the œdema, in the regions specified, is the degeneration and cystic dilatation of the mucous glands.

The particular shape which polypi usually assume, their number, probably the appearance, in some instances, of recurrence, and other special peculiarities of these growths, are due to the œdematous mucous membrane being thrown into folds, and to the normal folds becoming œdematous. Certain of the folds quickly increase in size by the absorption of serous fluid and favored by gravity, and finally present the appearance of ordinary mucous polypi.

The "polypoid" outgrowths, which take origin on the inferior turbinal, and more rarely on the septum, generally differ markedly in microscopical structure from mucous polypi, and, although they claim a common inflammatory origin, these conditions are distinct, principally on account of the dissimilar structure of the nasal regions from which they respectively take origin (Zuckerkandl). E. S. Yonge (British Medical Journal, November 5, 1904).

NERVE DEFECTS, BRIDGING OF.

Although correction of the evils resulting from a gap in the continuity of a nerve is a matter of great importance in a given case, it hardly seems possible at this time to say definitely what form of bridging should be employed. More cases, and especially cases recorded later and better, are needed. Neuroplasty and implantation (anastomosis) are always available resources, and for the present it would seem that they should be preferred. Resection of bone may be ad-

visable in selected cases. Transplantation of foreign grafts should be abandoned. It is hardly necessary to say that prognosis in an individual case should always be guarded, and that repeated operations may be necessary. Charles A. Powers (Annals of Surgery, November, 1904).

OTITIC SEPTICÆMIA.

The writer especially urges the frequent and full employment of enteroclysis in cases of otitic toxæmia as a remedy potent and general in its effect, while almost ridiculously simple in its employment. The temperature may be warm, medium, or cold, as the inclination or condition of the patient dictates. The amount must vary from 2 or 3 ounces in the infant to a pint in some adults, in accordance with the capacity of the bowel. The introduction must be slow, with slight pressure—a foot of elevation of the reservoir is enough—and the perineum may need to be supported for many minutes after the withdrawal of the tube if retention is to be secured. Even if much of the fluid is lost, its flushing of the lower intestinal tract is of great importance, and the amount of absorption is generally greater than might appear. Quinine and other medicaments may be added to it, or the nutritive materials if other means of feeding are unsatisfactory. But with all this simplicity it is probably as efficacious as most of the possible interventions; and in the vague, indeterminate cases, where surgery must wait for clearer indications, it may often forestall serious complications and prove the means, not brilliant, but real, of saving life. B. Alexander Randall (Journal of the American Medical Association, November 26, 1904).

PANCREATIC AND INTESTINAL JUICES, ENTRANCE OF, INTO THE STOMACH.

According to orthodox teaching, gastric digestion is performed by the gastric juice alone. This, however, is far from being always true, and in certain conditions large quantities of pancreatic juice, as well as some bile and intestinal juice, may enter the stomach and take upon themselves the work of gastric digestion. In the presence of fatty foods in the stomach, in excessive acidity of the gastric contents, and in prolonged starvation, there takes place a backward flow of the natural mixture of pancreatic and intestinal juices into the stomach. This fact may be utilized for obtaining pancreatic juice or bile for diagnostic purposes. In a fat diet the fats in the stomach are digested chiefly by the ferments of the pancreatic juice. In examining gastric contents or vomitus it should be remembered that pancreatic juice may be present. In the normal stomach, free hydrochloric acid may be absent after a test-meal, and pepsin digestion may be also negative, owing to the neutralizing action of alkaline pancreatic juice. The fact that the stomach does not digest itself is not explained by any one of the current hypotheses, because they all ignore the frequent presence of pancreatic juice in the stomach. In testing the motor power of the stomach by means of a test-meal, it must be remembered that the stomach contents may be increased by the backward current of pancreatic juice. Again, when using salol for this test, the possible splitting up of the drug by the pancreatic juice in the stomach must be allowed for. Gastric digestion is by no means so simple as heretofore considered. W. N. Boldirew (Russki Vratch, September 25 and October 2, 1904; from American Medicine, Nov. 12, 1904).

PHOSPHORIC ACID IN THERAPEUTICS.

The author states that anhydrous phosphoric acid has no toxic action. Guinea-pigs killed after having ingested what would be equivalent to doses of 200 grams a day for a man showed no evidences of fatty degeneration of the kidneys or liver. The microscopical findings were those of normal organs, as also in dogs. Some of his patients have been taking from 2 to 4 grams for more than five years, without showing evidences of intolerance. The morbid conditions in which it is most beneficial are those in which there is demineralization of the organism with hypo-acidity of the urine. It is especially effectual when the nervous system seems to have partially lost its resisting power. True neurasthenia, for instance, is accompanied by considerable elimination of the alkaline phosphates in the urine, the logical consequence of the exaggerated consumption of phosphoric acid occasioned by the overexertion of the brain. The nervous balance cannot be restored until the lost phosphorus has been replaced. In neurasthenics in whom the nerve-cells are secondarily affected from some digestive or other trouble the urine will be found hypo-acid with phosphaturia or "hypophosphatia" and the phosphoric acid may be required for years. In arthritis, rheumatism, tuberculosis, malaria, dyspepsia, etc., during the phases accompanied by demineralization of the organism, phosphoric acid will be found surprisingly effective, as also in the nervous troubles of pregnancy and overrapid growth. Years of experience have only rendered the author more emphatic in the recommendation of phosphoric acid in therapeutics. F. Cautra (Presse Médicale, No. 71; from Journal of the American Medical Association, November 12, 1904).

PHTHISIS, EARLY DIAGNOSIS OF.

Giulio (Gazzetta degli Ospedali, July 17, 1904) draws attention to the quality of the inspiration in the diagnosis of phthisis. For the early diagnosis, more value is to be attached to inspiration than to expiration, and the author advises attention being paid to that alone. Inspiration gives data, direct and precise, as to the condition of the alveolar canals and lobuli, while expiration indicates more especially the state of the bronchial channels, and the early localizations of phthisis are in the alveoli; hence it is more likely that inspiration should give early evidence of disease than expiration. The chief modes in which it becomes pathologically modified are in the way of roughness, weakness, and interruption, and of these the most stress is laid on the first. It is useful to remember that respiration is normally more marked in women, especially at the right apex, than in men; more marked in the erect than the prone position, after meals than before; and in subjects who breathe badly one can sometimes get better breathing by telling him to breathe rapidly with the mouth closed. Interrupted respiration (cog-wheel) probably means impaired elasticity of the lung, and possibly weakening of external respiratory muscles. (British Medical Journal, November 5, 1904.)

PREGNANCY, THE MATERNAL HEART IN.

When there is distinct evidence of failure of compensation, or when the patient is liable to frequent attacks of failure of compensation, pregnancy should be forbidden. With fair compensation, as evidenced by the presence of a diastolic murmur and the absence of a presystolic murmur, or of a continued irregularity of the pulse, or of

a jugular pulse of the ventricular type, pregnancy should be forbidden. With fair compensation, with a mitral murmur systolic or presystolic in time, with the apex beat within the nipple line, and due to the left ventricle, the patient may undertake the burden of pregnancy.

In all cases of valvular disease, when conception has taken place, the patient should be kept under close observation. One feature of great prognostic significance is the presence or absence of symptoms of œdema of the lungs. J. Mackenzie (British Medical Journal, October 8, 1904).

PROSTATE, THE ROLE OF THE, IN AFFECTIONS OF THE URINARY TRACT.

The prostate, though a sexual organ in health, is essentially a urinary organ in the diseased state. Urinary symptoms are most often directly due to prostatic disease. Any pathological lesion of the prostate which increases its size favors interference with the urinary stream to a greater or less degree. Inflammation of the prostate is always accompanied by urinary symptoms. The genital symptoms are less marked.

In reference to gonorrhœa, the prostatic urethra is the most important portion of the urinary tract: it is the favorite seat of chronic urethritis: it is the medium over which the inflammation travels from the urinary to the genital tract. The prostate is solely responsible for the important urinary conditions which result as a consequence of its senile hypertrophy.

Prostatic concretions may lodge in the bladder and act as the nucleus of larger vesical calculi. Chronic contracture of the bladder neck, neuralgia of the prostatic urethra, prostatic tuberculosis, malignant prostatic disease, prostatic cysts, and trauma of the organ are all made evident by their effect on the urinary function. Last, these numerous urinary affections justify the consideration of the prostate as a urinary organ, second only to the kidneys in importance. A. L. Wolbarst (Medical Record, October 29, 1904).

PROSTATITIS, CHRONIC.

Chronic prostatitis may be the cause of many serious consequences, as sexual neurasthenia, sterility, impotence, and reinfections, it being a favorable *nidus* for lingering gonorrhœa. The symptoms until recent years have been placed under the headings spermatorrhœa, azoöspermatorrhœa, prostatorrhœa, etc., and were claimed to be of neurotic origin. The literature, except within the last few years, has been both inadequate and misleading, because the pathology was unknown. Before giving consent for a patient with an apparently cured gonorrhœa to marry the secretions of the prostate and appendages should be examined. There is no disease in which more information can be obtained from a careful examination of the prostate and secretions. A discharge after urination, defecation, or physical exertions; sexual disorders, no matter how mild; urine passed frequently with slight pain at the end of the act, should always lead to an examination of the prostate.

Treatment must be directed to complications as well as to the establishment of proper hygiene for the patient; the prostate should be treated by massage, and heat or cold variously applied. The brilliant results of prostatic surgery should stimulate increased interest in the rational medical treatment of chronic prostatitis. E. G. Ballenger (American Medicine, November 12, 1904).

PRURITUS ANI, TREATMENT OF.

The writer limits the term pruritus ani to a condition characterized by intense itching about the lower orifice of the bowel. Pruritus is often a symptom, sometimes an essential disease. The possible etiological factors of this affection are numerous. It is often found in the gouty, and in those who suffer from disorders of the digestive and chylopoietic apparatus. Shellfish and strawberries sometimes give rise to it; also tobacco. Piles, constipation, fissure, ulceration, foreign bodies, and irritating discharges from the bowel or neighboring parts sometimes give rise to it. Cutaneous diseases, such as eczema, may produce the symptom. It is said that the most important predisposing cause is hyperæsthesia. General diseases producing it may be idiopathic neuroses, such as hysteria or hypochondriasis, or other affections of the nervous centers. Although pruritus ani may occur at any age, there is a certain relation of particular causes to particular ages. Thus in children the itching is likely to be due to worms. The patient generally seeks relief in violent scratching, and thus secondary lesions develop.

Pruritus ani is often very refractory to treatment. The first thing to do is to seek for the cause and remove it, or neutralize its action. The treatment must be appropriate to the cause. In all cases it is well to regulate the bowels and recommend a bland, but nutritious, diet. Rich foods and alcohol should be forbidden. Short courses of calomel in small doses are useful. Tonics are indicated if the patient is depressed, with a poor appetite, and failing nutrition. Thorough flushing of the system with large quantities of weak alkaline waters is often a powerful aid to local treatment. The most scrupulous cleanliness must be enjoined. The application as hot as can be borne is a very efficacious method. Some patients prefer very cold water. After bathing, a soothing or cooling remedy should be applied.

Local remedies may be classified as anodyne, antiseptic, and caustic. Cocaine may be used in the form of a suppository, but care should be taken that the patient is not allowed to use this remedy too freely. Menthol is cooling. A strong solution of bicarbonate or bisulphate of soda applied in a poultice is an excellent sedative. Carbolic acid often acts like a charm. Oil of cade is useful. The local application of calomel is highly praised. The calomel stops the itching at once, according to the advocates of this method. Nitrate of silver is sometimes used. The patient should be kept cool in bed. Hypnotic suggestion has been tried with success. Electricity is said to have given good results. It is well, after bathing the parts, to apply a powder like bismuth, oxide of zinc and starch, or orthoform. However, each case must be studied as a distinct problem. Malcolm Morris (British Medical Journal, October 15, 1904).

RHEUMATISM, ACUTE, THE THROAT AS THE SOURCE OF SYSTEMIC INFECTION IN.

Acute rheumatism is an infective disease *sui generis*. There is a true rheumatic pharyngitis and tonsillitis. Rheumatic pharyngitis or tonsillitis is a primary infectious disease.

Rheumatic fever is a secondary infection, due either to the absorption of the products of the infective micro-organisms or to the growth of such micro-organisms in the tissues, and the infection may manifest itself in arthritis, pericarditis, endocarditis, chorea, bronchitis, pleurisy, alone or in association.

In a large percentage of cases the portal of infection is in the fauces or pharynx or other region of the upper respiratory tract, but most frequently the oro-pharyngeal lymphoid ring. There is no proportion between the intensity of the primary local lesion and the appearance or severity of the secondary systemic complications. P. W. Williams (Bristol Medico-Chirurgical Journal, September, 1904).

SCARLET FEVER, DISTURBANCES OF THE HEART IN.

The writer has made a study of the heart in 191 cases of scarlet fever, in 35 per cent. of which there was some abnormal sign in the vascular system. Epidemics vary very much in the frequency of the different complications; most of the author's cases belong to an epidemic in which nephritis was rare, but the incidence of heart trouble and also of middle ear disease was high, but there was no apparent relation between these two conditions. The pulse at the onset of the fever is quick; 150 to 160 in children, 120 to 140 in adults, are not uncommon, but they do not afford much indication of the heart condition. The pulse-rate has also no bearing upon prognosis. Heart lesions may be present with a slow pulse. More significance attaches to the pulse at a later period. As a rule, its rate falls to normal with the temperature, and may become for a short time subnormal. Sometimes the pulse-rate falls very suddenly, at others its fall forms a steplike curve. The fall often precedes that of the temperature. A common condition about this time is an irritable state of the heart, the pulse-rate showing daily fluctuations of 20 or more beats. The pulse-rate finally may remain high with a normal temperature. All these phenomena may be present without other circulatory disturbances, but if exaggerated they generally point to some heart lesion. Sometimes the pulse, after being normal or slow during the first part of convalescence, shows a later acceleration; if this is marked and isolated it always means some heart lesion. In such bases an apical systolic murmur may be found; this may be fleeting or permanent, and of varying quality. The apex-beat is displaced outward, the heart's dullness shows increase transversely, and the second pulmonary sound is accentuated. Accentuation of the second pulmonary may be present alone. Arhythmia is a common accompaniment. The subjective symptoms are absent or slight. All grades of severity are seen. It is not only the severe cases which show this heart disturbance, but also quite mild ones. The relation to scarlatinal rheumatism is shown by the following figures: Of 23 cases complicated with rheumatism, 10 showed heart affection; 70 other cases showed heart trouble without signs of rheumatism. Previous heart disease seemed to have little influence. In 29 of the affected cases the heart trouble had cleared up before leaving the hospital; of 24 examined several months later, 5 showed no heart trouble, but in 16 there were definite signs of mitral regurgitation, in 2 there was an apical murmur without enlargement of the heart. A necropsy was held on 13 cases; in only 1 was endocarditis found. Of 20 other cases quoted endocarditis was found in 2. The heart disturbance thus resembles that of diphtheria in affecting the heart muscle rather than the valves. The author insists on careful examination of the heart in all cases, with rest in bed and application of ice to the heart region if disturbances result. The author has found

no benefit from digitalis. Schmaltz (Münchener medicinische Wochenschrift, August 9, 1904).

SERUM THERAPEUTICS OF SNAKEBITE.

Antivenomous sera are markedly if not absolutely specific, even between the venoms of species of the same genus. Hence in any case of snakebite the serum prepared with the venom of that species which has inflicted the bite must always be used. The difficulties in collecting the poisons of the different species of snakes in sufficient quantity for purposes of immunization are apparently very great. Up to the present the only sera which have been used practically are the one prepared by Calmette and the one prepared at the Pasteur Institute of India with pure cobra venom. Both these sera are practically specific for cobra venom. As the neutralizing power of these two sera is not great and as a cobra can inject a large amount of venom, the serum must be given in large quantity; as much as from 300 to 400 cubic centimeters, even when given intravenously, would be necessary in some cases. If given subcutaneously from ten to twenty times this amount would be required. It should therefore always be given intravenously. Experiments on dogs and the records of cases of cobra bite in man bear out these calculations. It is evident from the above considerations that it is a question as to whether the advantages to be gained by the serum treatment of cases of snakebite are at all commensurate with the cost entailed in the preparation of the sera. George Lamb (Lancet, November 5, 1904).

STERILE WATER ANÆSTHESIA.

The author describes in detail his method of obtaining local anæsthesia by the hypodermic injection of sterile water. The method is simplicity itself. The only thing necessary is to inject enough sterile water to blanch the tissue in the area of operation. The more or less care used in injecting the water will make the difference between failure and success. The cases in which the author has employed it include radical operations for fissure, ulceration, protruding and non-protruding internal hæmorrhoids, cutaneous and thrombotic external hæmorrhoids, polypi, prolapsus ani, ordinary complete and blind internal and external fistula; and ischio-rectal, marginal, and follicular abscesses; excision of perineal cysts, sacral dermoids, and lipomata of the buttocks; removal of foreign bodies beneath the skin and mucosa; division of the sphincter in constipation, when the muscle was so hypertrophied that divulsion had proved ineffective; fixation of an elongated sigmoid to the anterior abdominal wall; colostomy, and exploratory laparotomy. The objections to the method are practically *nil*. S. G. Gant (Medical Record, October 29, 1904).

STRABISMUS, CONVERGENT.

Esotropia is most likely to manifest itself before the end of the third year. It cannot yet be said whether any of the various reasons assigned by parents for the appearance of strabismus have aught whatever to do with it. Whooping cough may be related to it. Heredity certainly plays a part in bestowing upon some children a congenitally deficient visual apparatus. The degree of deviation will average about 30 degrees in a large number of cases. It is in no special way bound up with the degree of refractive error.

The amblyopia of esotropia is presumably an amblyopia ex anopsia, the

present day evidence being against Shweigger's theory of a congenital amblyopia. The degree of amblyopia increases with the length of time elapsing between the appearance and the time of treatment; especially is this true after the seventh year.

Improvement may be expected in the amblyopic eye in 50 to 60 per cent. of cases by properly adjusted glasses. This improvement varies from 20 per cent. to ninefold betterment. While a defectively developed fusion apparatus has much to do with the genesis of esotropia, the influence of hypermetropia and its allied states seems almost as important as in the days of Donders. The part played by astigmatism is no little one.

There seems to be no special relation between the degree of refractive error and the degree of deviation. Hypermetropic conditions of from one to four diopters seem most commonly associated with esotropia. A very high degree of hypermetropia does not necessarily exclude strabismus, as three cases in the series presented were of eleven diopters and over.

If taken before the fifth year, there seems no reason why the strabismus should not be cured by nonoperative methods in 70 per cent. of cases. This percentage will, in all probability, be increased to 80 per cent. in the next ten years. The results of nonoperative treatment in children, if adhered to with any persistence, are infinitely better than any "scissors" statistics thus far offered. Wendell Reber (New York Medical Journal and Philadelphia Medical Journal, November 5, 1904).

SYPHILIS, PRINCIPLES FOR TREATMENT OF.

The writer's principles are intensive treatment for four years, and not only intensive, but continuous. General treatment must be accompanied by local measures as often as practicable. Metallic mercury is the one specific, the dose the largest amount that can be given without symptoms of intolerance, preferably through the skin or into the muscles. Later potassium iodide should be given a larger place and local treatment assume a more prominent rôle. In the after-affections vigorous specific treatment during the premonitory or incipient stages of tabes offers the only prospect for complete success. Vigorous treatment should also be resumed wherever a new symptom indicates the development of a new syphilitic focus in the spinal cord. Patients in the incipient stages of tabes can thus be kept in satisfactory condition for years. The same applies to progressive paralysis except that mercury alone is indicated in this case. Œdema may be benefited by compression, cicatricial keloid by radiotherapy; ectropion and sequesters may require operation, dystrophies may be cured by electrotherapy. In inherited syphilis after-affections resulting from disturbance in the embryonal elements are scarcely amenable to treatment. The physician should treat the syphilitic with mercury, internally and externally, without cessation, and with potassium iodide as long as he is justified in assuming that the causal agent still lingers in the body. H. Hallopeau (Deutsche medicinische Wochenschrift, vol. xxx, No. 38, 1904).

TRANSUDATES AND EXUDATES.

The color of the fluid, its reaction, and size of the erythrocytes are of little diagnostic value. Nucleo-albumin is usually much more abundant in exudates than transudates; however, many exudates fail to show more than a faint trace. On account of the constancy of

the salts present, the specific gravity and amount of albumin bear an intimate relation.

Fluids from different body cavities of the same individual, or fluids of the same origin in different individuals, or successive tappings of the same cavity, may show marked variation in the amount of albumin, probably explained by the permeability of the capillaries, the degree of irritation of the serous surface, the condition of the patient's blood, the tension of the fluid, the amount of absorption taking place, and possibly the blood-pressure.

Methods of estimating the bulk albumin, as Esbach's or Purdy's, are not applicable to serous fluids. Reuss's formula is the most accurate, simple method for determining the amount of albumin in serous fluids.

The diagnostic value of the specific gravity, or amount of albumin, is greatly lessened by the frequent presence, simultaneously, of several processes. A hydræmia, as a result of anæmia or transudation from pressure, may lower the specific gravity of an inflammatory fluid. Secondary inflammation, high tension of the fluid, or resorption taking place may increase the specific gravity of a transudate.

At present there is no absolutely reliable method for determining the tuberculous character of a serous fluid. The specific gravity of a fluid, when taken for successive tappings, may be of prognostic value. Epithelial cells in sheets are not infrequently present in fluids of inflammatory origin. The predominance of lymphocytes may be associated with a long-standing, simple pleuritis, a hydrothorax, or a tuberculous pleuritis. The presence of relatively large numbers of neutrophiles in pleuritic fluids may be associated with an acute, simple, or a secondary tuberculous pleurisy. The presence of numerous cells, chiefly neutrophiles, suggests an acute, simple pleuritis. The presence of numerous lymphocytes, with few, if any, neutrophiles, indicates that the process is probably a tuberculous one.

In ascitic fluids there is little that is characteristic. Neutrophiles are usually more abundant in fluids, due to portal stasis from cirrhosis than in tuberculous peritonitis. An eosinophilia in one body cavity may occur along with a neutrophilia in another.

A study of the cellular elements in fluids, from the pleural or abdominal cavities, is of comparatively little diagnostic value, either in differentiating transudates from exudates or in determining the character of the latter. J. L. Miller (American Medicine, November 12, 1904).

TYPHOID FEVER, RUPTURE OF MESENTERIC GLANDS DURING.

Swelling of the mesenteric glands is a constant lesion of typhoid fever. Such enlargement is due principally to a proliferation of the endothelial cells lining the lymph sinuses. These cells by penetrating the walls of the capillaries and smaller veins produce thrombosis, with resulting minute necroses. Such necrosis ends in resolution.

Perforation of the capsule of the gland is dependent on some causes other than the presence of the typhoid bacillus and thrombosis of the smaller glandular vessels, and is probably due either to the presence of the staphylococcus or streptococcus in the gland, or to thrombosis of larger vessels of the mesentery outside of the gland. R. G. Le Conte (Journal of the American Medical Association, October 22, 1904).

TYPHOID FEVER, SPECIFIC TREATMENT OF.

In all cases of typhoid fever mercury is well borne by the system; it requires more mercury to get the constitutional symptoms of tenderness of the gums when typhoid fever is present than under any other circumstances.

In the administration of blue mass in cases of typhoid fever gradually, as the system becomes impregnated with mercury, just so gradually are the bacilli disappearing; so that when the system is impregnated with mercury to the extent of a slight soreness of the gums the bacilli are no longer active. This is signified by a gradual reduction of the temperature to normal and a rapid convalescence.

With the use of mercury the patient's blood is in a more healthy state; mercury maintains the red corpuscles of the blood, and accordingly the system does not fall into that state of grave anæmia so common to the disease under other or no treatment.

The patient may begin taking solid food as soon as the temperature is normal without danger of relapse. This the author attributes to the healthy condition of the blood due to the action of the mercury in the system.

A few days after the beginning of the administration of mercury in the treatment of typhoid fever the tongue gradually becomes moist. The breath gradually becomes less fœtid, indicating a more healthy condition of the stomach, and there is a desire on the part of the patient to take the nourishment described. The stools also gradually lose their fœtid odor. The author has not had a dry tongue continue beyond three or four days after treatment was instituted since he began the use of mercury in this disease.

The temperature of the patient treated with mercury in typhoid fever does not become subnormal after fever drops. The reason ascribed for this is twofold: *(a)* the disease is controlled before the patient falls into a very low physical condition, and *(b)* the mercury preserves and increases the red corpuscles of the blood, tending to maintain the physical standard.

It is unnecessary, unpardonable, and unscientific to salivate a patient when using mercury in the treatment of typhoid fever, but the author has yet to observe any ill effects of the slightest nature from the use of mercury in the system to the extent only of the soreness of the gums. J. M. Hackett (Medical Record, October 15, 1904).

TYPHOID FEVER, THERAPEUTIC FASTING IN.

Fasting and a restricted diet are indicated in the treatment of typhoid fever because of pathological conditions, and such treatment will, to a great extent, eliminate the dangers of sthenic cases. In fact, the proper food management of a case will well nigh shield it from every danger incident to the course of the disease. What the patient loses in food is more than compensated by a lessened degree of toxæmia. Surplus food causes accumulations in the intestine, augments the toxæmia, causes diarrhœa, and increases the risk of hæmorrhage. There always is a greater degree of toxæmia in cases complicated by severe gastro-intestinal disturbances. Different individuals are affected differently by the specific toxin, robust young adults being more susceptible, while the extreme of ages and the anæmic are less so. The author employs cocoa, coffee, egg albumin, peptonoids, and broths of beef, mutton, chicken, oysters, etc., in prescribed

amounts, to be given only after the patient has fasted from twenty-four to forty-eight hours. Gelatin is a valuable adjuvant in the dietary of the typhoid by adding to the relish of the various liquids, lessening the nitrogenous waste, and preventing hæmorrhage. A teaspoonful three or four times a day is ordered, dissolved in a little hot water and added to any liquid nourishment. When used, emaciation is less rapid. It should be used as a routine in all cases to prevent hæmorrhage. In very aggravated cases of diarrhœa it may increase tympany, but in these cases it may be used on alternate days in small quantities. Since beginning its use, the author has not had a case of intestinal hæmorrhage. Milk should be absolutely forbidden, except diluted with from 2 to 5 parts of coffee, cocoa, broths or hot water, because then the danger of curd formation is slight. This plan of dietetic treatment should be continued until the active symptoms are controlled. Fasting in late stages and convalescent stages will cause fever. Nearly all recrudescences are due to dietetic errors. Fasting and restricted diet greatly enhance the effect of hydrotherapy. The writer reports 45 consecutive cases of typhoid, treated according to his method without a death. Since using the treatment he has had a mortality of only 3.4 per cent. R. M. Harbin (Medical Record, November 12, 1904).

VARICOSE VEINS.

The operation which gives the best and most permanent results is that in which not only the varices are removed, but also the trunk of the internal saphena in the thigh, and the result will more certainly be permanent if this portion of the vein is very extensively resected. No doubt recurrence might develop even after this operation, on account of anastomoses gradually developing from the upper end of the internal saphena which is allowed to remain, but results have not hitherto shown a case of recurrence. No operation will radically cure varicose veins, but will only ameliorate the condition. Yet, when patients who previous to operation were unfit for any serious exertion or long standing, and who presented on their legs extensive and prominent varices, and who years after the operation, neither show any appearance of varices nor complain of any disagreeable symptoms, surely the operation is worth performing. R. Kennedy (British Medical Journal, October 29, 1904).

WOOD ALCOHOL POISONING.

Methyl or wood alcohol, in any of its forms, as well as all methylated preparations made from it, is a dangerous poison, menacing both life and eyesight. It is best known in its deodorized form as Columbian spirits, purified wood alcohol, cologne spirits, colonial spirits, standard wood spirits, union spirits, eagle spirits, green wood spirits, and a variety of other fluids. It is used as an adulterant of, and substitute for, grain alcohol in cheap whisky and other alcoholic beverages, not to mention Jamaica ginger, lemon extract, and many other essences and flavoring fluids.

Methyl alcohol is largely used in the preparation of many proprietary and patent medicines, witch hazel, domestic liniments, as well as bay rum, cologne water, Florida water, and other perfumes.

To this date, at least 153 cases of blindness and 122 deaths have resulted from this poison; in all, 275 instances of lost life and eyesight. This total would probably be raised to 400 if a more thorough search were made.

The injury to the ocular apparatus consists chiefly of a destructive inflammation of the optic nerve fibers or retinal elements (or both), followed by their atrophy. The symptoms of poisoning are gastro-intestinal disturbances, more or less severe, accompanied by abdominal pain, general weakness, nausea, vomiting, vertigo, headache, dilated pupils, and blindness. If recovery does occur, there is marked depression of the heart's action, sighing respiration, cold sweats, delirium, unconsciousness, coma, and death.

The blindness is bilateral and may set in a few hours after the inhibition of the poison, or it may be delayed for several days. It is generally complete, with a subsequent improvement, and, finally, a relapse into permanent blindness. The visual fields are contracted and exhibit absolute central scotomata. The ophthalmoscope reveals at first a congested nerve head, followed by grayish or white atrophy and contracted vessels.

The diagnosis can hardly be mistaken. Methyl alcohol poisoning presents a picture unlike that of any other intoxication. Acute abdominal distress, followed by blindness, should always awaken a suspicion of methyl alcohol poisoning.

The prevention of poisoning by this insidious drug can only be brought about by prohibiting the sale of "deodorized" wood alcohol in all its forms. The number of deaths may meantime be limited by putting all methylated preparations on the list of poisons and prosecuting all persons adulterating foods and drinks with it. Labeling it with the notice, "This fluid, taken internally, is likely to produce blindness," will certainly have a deterrent effect.

Methyl alcohol intoxication is an example of idiosyncrasy. As in the case of several other poisons, some persons are largely immune so far as permanent damage to the organism is concerned. If each of ten persons drink, say, 4 ounces of Columbian spirits within three hours, all will have marked abdominal distress and 4 will die, 2 of them becoming blind before death. Six will eventually recover, of whom 2 will be permanently blind. With still larger doses, the proportion of death and blindness will be greater.

Poisoning by inhalation of the fumes of methyl alcohol generally occurs when the exhalations are mixed with rebreathed air, as in varnishing the interior of beer vats, small rooms, etc. It is also highly probable that, in susceptible subjects, repeated or even single methylated "alcohol rubs" may produce poisonous symptoms, through absorption of the spirit by the skin.

Chronic (or partial) poisoning from methyl alcohol (in the shape of "nips" of methylated Jamaica ginger, bay rum, punch made with Columbian spirits, etc.) is the most insidious and probably not an uncommon form of intoxication. Its symptoms are not so pronounced or so easy of recognition as in the acute form, but the eyes, digestive apparatus, and nervous system undoubtedly suffer.

The use of ethyl or grain alcohol in the arts, as in the manufacture of varnishes, as a burning fluid, for "stiffening" hats, lacquering brass, etc., is without danger to life or eyesight. By adding to it a small percentage of naphthalin, for example, the fluid would be undrinkable. A combination of ethylic alcohol with 10 per cent. of wood spirit would answer the same purpose. Such a mixture is the "methylated spirit" of Great Britain, where not a single case of acute poisoning or amaurosis from

methyl alcohol is recorded, in spite of the extensive commercial use of methylated preparations in the British Isles.

The treatment of methyl alcohol intoxication consists chiefly in getting rid of the poison from the stomach and intestines by means of the stomach-pump and rectal injections; stimulants, especially ethyl alcohol, strychnine, and coffee; heat to the body and extremities.

The treatment of the amaurosis is unsatisfactory. In the early stages pilocarpine and potassium iodide; later, strychnine hypodermically and by the mouth. Frank Buller and C. A. Wood (Journal of the American Medical Association, October 22, 1904).

X-RAYS, ACTION OF, ON THE LEUCOCYTE FORMING ORGANS.

C. Bozzolo (Riforma Medica, vol. xx, No. 34) has been systematically treating a number of patients with various affections by exposure to the x-rays. The list included one case of severe leukæmia, one of lymphatic leukæmia, two with Banti's disease, and one of chlorosis. The condition of the blood notably improved under the Roentgen treatment. One patient was a young woman whose leukæmia first manifested itself a year before with general weakness, dyspepsia, amenorrhœa, and palpitation of the heart. In a few months there was high fever, the spleen had enlarged enormously, and there was a hæmorrhagic effusion in the left pleural cavity. The reds numbered 2,800,000, and the leucocytes, 140,000; the neutrophile polynuclears in a proportion of 51 per cent.; the eosinophiles, 8.8 per cent.; the myelocytes, 14.7; and the lymphocytes, 22.5 per cent. Under tuberculin treatment the leucocytes were somewhat reduced in number, but the general condition grew worse. Roentgen treatment was commenced with exposure of the spleen, knees, elbows, and sternum. In a week the temperature had declined nearly to normal and in ten more days became permanently normal. The spleen also subsided nearly to normal outlines, the appetite and strength returned, the weight increased by nearly forty pounds, menstruation became normal, and the general aspect of the patient was that of health. In three months the leucocytes numbered 10,000, but then they increased again in numbers, at present being 40,000, with no myelocytes or eosinophiles and fewer lymphocytes, but more polynuclears. Although the patient was so much improved, her blood still had a suggestive leukæmic character, which rendered a relapse by no means improbable. The improvement observed in this case was paralleled by a number of other cases, showing that it was not a mere coincidence. (Journal of the American Medical Association. November 26, 1904.)

Books and Monographs Received.

The editor begs to acknowledge, with thanks, the receipt of the following books and monographs:—

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